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AN ESSAY ON THE USE OF  
Mixed and compressed Cattle Fodder,

FOR FEEDING AND FATTENING  
HORSES, OXEN, COWS, SHEEP, HOGS or PIGS,

Particularly adapted for young Stock, and for Horses or Cattle

On SHIP-BOARD, in CAMPS, or in GARRISONS.

Containing general Directions for preparing the Fodder, and Tables to ascertain  
the Expence and Weight, and the Quantity necessary for the several  
Kinds of HORSES or other Cattle.

TO WHICH ARE ADDED

Tables for calculating the Quantity of Hay, Corn, and Fodder, necessary  
to be provided for any Number of Horses or other Cattle,  
from one Day to any length of Time.

With some general Directions and Hints for increasing the Quantity of Cattle  
Herbage and preserving the same throughout the Kingdom. And Directions  
for pressing and packing of HAY when intended for Foreign Service;

With an improved Method of binding Hay, when intended for  
distant Carriage, and particularly for the better Supply

OF THE LONDON MARKETS.

ALSO

An Abstract of the ACT of PARLIAMENT for regulating the Purchase and Sale of  
HAY AND STRAW,

In LONDON, WESTMINSTER, the BOROUGH of SOUTHWARK,

And thirty Miles round, as regulated last Session of Parliament.

By S. LAWSON, *lc.*  
No. 9, Tower-Dock, and No. 354, ROTHERHITHE-STREET,  
LONDON.

Who prepares and furnishes the Fodder in any Quantity.

Samples may also be seen as above.

LONDON:

Printed for the Author.

And sold by Mr. RICHARDSON, Bookseller, Royal-Exchange; and Mr. DEBRET.  
Bookseller, Piccadilly.

AN ESSAY ON THE USE OF  
Mixed and compounded Cattle Food

HORSES, OXEN, COWS, SHEEP, PIGS, &c.

ON THE BOARD OF AGRICULTURE

[Entered at Stationers-Hall.]



IN LONDON, WESTMINSTER, at the BORDERS of WATERLOO

And this Book is to be sold at the BORDERS of WATERLOO

By S. LAWSON

No. 2, Tower Dock, and No. 1, ROBINSON'S LANE

LONDON

Who propose to publish the following works

Examples are, the British and Foreign

FOR THE

Printed by

At the BORDERS of WATERLOO, and at the BORDERS of WATERLOO

Printed by

1797

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TO

SIR JOHN SINCLAIR, BART.

PRESIDENT *of the* BOARD *of* AGRICULTURE.

HONOURABLE SIR,

**T**AKING the liberty of addressing my little performance to you, I flatter myself, will not be received otherwise than as a mark of respect for the polite manner in which you introduced my first observations to several of the Members of the Honourable Board of Agriculture; whose flattering reception has induced me to lay the same before the public, in hopes that, however imperfect, they may induce many to adopt the general mode of feeding here recommended, with such improvements as may occur in the practice or opinion of each individual.

By which means two grand objects will be attained, viz. the increase of the quantity of cattle-herbage in general; and the decrease, at the same time, of the consumption of herbage and corn, throughout the kingdom. In consequence, the quantity of stock may be increased to such a degree, as to reduce the price of food to a fair and moderate rate.

B

Such

Such errors or omissions as may appear, I hope and flatter myself, your goodness will excuse, with your accustomed liberality.

The zeal which you have so conspicuously manifested for the public good is so generally known, and so particularly felt by every individual, connected with you in business or friendship, as to render any confirmation from me totally unnecessary, it being impossible for my feeble efforts to make the smallest addition to your truly respectable character.

Being assured that any work, tending to the general service of the community, will always receive from you protection and encouragement equal to its merit, I most respectfully beg leave, under that impression, to subscribe myself, with profound gratitude,

HONOURABLE SIR,

Your most obedient

And much obliged

Humble servant,

STEPHEN LAWSON.

London, March 1, 1797.



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## INTRODUCTORY ADDRESS

TO

GENTLEMEN, GRAZIERS, FARMERS, and OTHERS,

INTERESTED IN

Breeding or keeping Horses, or other Cattle, either  
in Field, Stable, Barn, or Hovel,

But more particularly relative to those unavoidably kept

ON SHIP-BOARD, IN CAMPS, OR IN GARRISONS.

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**I**T is generally the fate of new inventions to be opposed by prejudice or interest, until their utility has been proved by experience and practice.

And it is a misfortune usually accompanying any attempt at improvement, that men are with much difficulty persuaded to deviate from the rules and customs they have been used to; but surely antiquity cannot justify the continuance of any custom or system founded in error, nor ought any particular process or custom to become perpetual, merely because it has been general.

Yet certainly the utility of changing any custom ought to be fully substantiated and proved, before the public should even be asked to change the mode to

which they have been accustomed. A thorough conviction of this, and that the mode herein proposed of feeding cattle will bear the strictest scrutiny, is, I flatter myself, fully established by the respectable characters who have examined and approved of the same, and I have no doubt but, when this mode and method of feeding horses and cattle becomes once in general use, that racks will be nearly abolished in stables, especially where many heavy horses are kept for the purpose of labour, either in the cart or field. Having made a statement of the food necessary for a single horse, as well as for a greater number of each, a proof of the utility is within the reach of every person interested, by taking the usual allowance of hay and corn given to one or more horses, or other cattle, in the usual mode; at the same time take from the same stock the like quantity, and cause it to be manufactured and mixed agreeable to the proposed plan, as laid down in the several tables, and its utility will soon be manifest, by the increase in quantity by the manufacture, which not only improves the quality of each article, but enables any person to feed each kind of cattle with a great degree of exactness, fully preventing the waste of the smallest particle, which is so much the case when hay is given in racks.

In order to select the several kinds of herbage best adapted for a general mixture, much labour and expence unavoidably accrued in finding out such kinds of corn and herbage as, when incorporated and  
mixed,

mixed, would improve, by time, instead of spoiling, by being closely packed, either in the barn or on ship-board, in the various changes of climate the same is liable to be sent to, at all times, but more particularly in time of war.

The damps and various heats on-board of ship, occasioned by the variety of goods stowed therein, and the length of time the same must unavoidably be kept close, required the greatest care and attention to select the articles best adapted for the general intention. And it is presumed the proof that the mixture recommended answers the purpose wished will be sufficiently established by the reports of the several gentlemen to whom it was sent. A few letters from some very respectable foreign merchants are hereunto annexed, which it is hoped will fully remove every fear, that the same will be liable to spoil even during the longest voyage.

In order to ascertain this with the necessary degree of precision, mixtures of the various kinds have been compressed, and sent, in different kinds of packages, to various parts of the globe, where, it was presumed, cattle herbage was scarce, but in particular to the island of Maderia, and the East and West Indies. And, from the satisfactory proofs that have been received, and the general approbation expressed by the several gentlemen who have tried the same, no doubt can remain but that the mixture will keep good any length of time, and retain its nutritive

qualities in a much more safe and perfect state than hay and corn packed in the usual but expensive mode, and intended for the use of horses or other cattle on ship-board. As the consumption of hay and corn, in this way, is very extensive, it is an object of much importance, and requires the greatest possible care and attention, fully to secure the same from damage after being shipped. And this object will be attained in the best manner possible by adopting the mode herein proposed, as a large quantity can be compressed in a small compass, agreeable to the several tables for the different kinds of mixtures.

The great saving and advantage that will arise, to every person engaged in the feeding or keeping a number of cattle, will so fully and clearly appear, on perusing the several tables, and contrasting them with the expence attending the same quantity of food given in the customary way, as to require but few additional observations to shew the utility and advantage that will arise in every instance, but more particularly with heavy horses or other cattle, kept either for labour or to be fed for slaughter. And this end will be much facilitated by using the food in a cut and manufactured state, as laid down in the several tables: for this cut food being mixed with corn after being compressed or bruised, proves materially beneficial to every kind of horses or cattle to which the same may be given, but more especially to all kinds of young stock, whether stall-fed or in the field, where the advantage will be equally conspicuous,

as the food is much more nutritive than when given in a whole and unmixed state; for, by its being broken, no part of the grain can remain in an undigested state, which is frequently the case with horses, who void the corn among their dung in a state as perfect and undigested as when taken from the binn. This is clearly proved by the number of birds which follow the dung of such horses to pick out the whole corn, as no such circumstance will be observed where the horses are fed with corn compressed and mixed with other herbage.

It is therefore conceived, the advantages that will arise from adopting this mode of feeding amount to a saving in the consumption of full one-eighth part of the corn and cattle herbage, now too generally used in racks, and given in an unbroken state, whereby the principal part of its most nutritive qualities is, to many kinds of cattle, totally lost.

Another material advantage will also arise, by the general adoption of using cut and mixt food, from the facility of mixing many coarse kinds of herbage with the food, as it would be rendered both palatable and nutritive from being impregnated with the juices of the richer kinds of corn and herbage. By this means the quantity of cattle herbage may be increased to a wonderful degree; as I conceive there are many kinds of vegetable produce which, with care, may be so mixed with other herbage as to produce an exceeding good substitute for clover and hay, viz.



The halm or haum of peas and beans, from the garden or field.

Ditto of potatoes, and the tops of carrots, &c.

The latter might be cut off at an early part of the season for taking up, when there is sufficient sun for drying the same; but, if there be not sufficient heat, the drying may be finished in a common tile-kiln, which may be erected at a moderate expence, and would, on many occasions, be found of the greatest utility both for the above purpose and that of drying corn, chaff, bran, &c.

Also may be added the young branches of fir-trees, which sheep in common are particularly fond of, and which are both wholesome and very nutritive.

The mode of mixing the ingredients, which I think may be adopted with the most success, is as follows: at the time when the second crops of clover are generally cut, I should recommend the pea and bean halm, and other vegetable produce, to be cut and dried as much as possible by the sun; and, at the time of stacking the clover, it should be put into the stack, either in layers or mixed with the clover; to this may be added a proportion of straw, or cavings, which will be a great means of preventing the same from heating, or turning mouldy, as the straw is in general of a dry and firm nature. A quantity of common salt, where it can be readily procured, should be mixed in the stack, in any quantity, as it will have an extraordinary good effect, and act both as a preserver



server and rectifier. The same application may be made in the stacking of hay, especially in damp or wet seasons.

As the price of the necessary food for human support depends very much on that of cattle-herbage, every saving or increase that can be made in that article becomes an object of public attention and care; and the general benefit, that would arise to the community at large, would soon manifest itself in every part of the kingdom, but more particularly in or near the metropolis, or other great cities, where the regular and constant supply is attended with so much difficulty and expence, from the wonderful demand and consumption, which is daily increasing.

The mode I shall hereafter endeavour to point out will enable every gentleman, farmer, or other person, to use up the whole of his straw, or other coarse offal, by having the same cut and mixed with the other herbage, and impregnated with the more rich and nutritive food. And this may be readily prepared, and the expence and weight of the same easily ascertained, by observing the rules laid down in the several following tables.

The saving arising from using mixed food may be easily ascertained by selecting two sets of cattle, equal in number, and giving to one set of them any certain quantity of hay, corn, or other materials, in a plain and unmanufactured state, and to the other set the like quantity of food prepared and mixed in the manner mentioned in the succeeding tables. On comparing

paring the results, the advantages of having the mixed food will be so manifest as to exceed belief, unless tried in the above mode.

Another material advantage arises from having the corn, &c. mixed with chaff and other herbage, as it prevents, almost to a certainty, the evils occasioned by waste and plunderage, which hay and corn is ever liable to when used in the common way; as, from the corn being compressed and mixed even with a small quantity of other ingredients, the pilferage is in a great degree prevented, as it cannot be so readily disposed of, and, at the same time, it is much more easy of detection, as every gentleman, farmer, or other person, may ascertain and allow an exact quantity, either by weight or measure, of the kind of food necessary to be given to each head of cattle, according to the purposes for which they are intended, either for labour or to be fattened for slaughter, which quantities may be exactly ascertained by a reference to the tables.

Impressed with the idea that, if the mixture recommended could be brought into general use, it would prove of great public convenience, for the sake of having it properly tried, I transmitted various parcels to persons in foreign parts, from whom I received the most flattering approbation, and I doubt not but a very material saving may be made in the consumption of corn and hay, now so generally used for the feed of almost all kinds of cattle and horses, especially those in camps or garrisons, where the

saving

saving in the consumption would not only be very considerable, but there would be a great convenience from the closeness and safety of the package, by adopting the mode of pressure, by which large quantities may be compressed into a small compass, either in casks or bags, which extremely facilitates the removal with ease and safety, even when the casks are exposed and uncovered, and these are circumstances that must ever be considered as a material advantage to the cavalry, on an embarkation or changing ground, as sudden occasions may require

The favourable reception the idea has met with from numbers of gentlemen and farmers, who have slightly perused my account of it, leads me to entertain little doubt but the mode will come into general use. Being well adapted for private convenience and public sale, I have no doubt but numbers of manufactories will be established for the same, together with the various articles generally used in the composition, which, except hay and oil-cakes, may be had at most of the principal corn-chandlers, or splitting-mills, where peas or beans are manufactured for boiling.

The oil-cake is to be procured at the several oil-mills where linseed-oil is made, and may be easily reduced into small particles by cutting with a hatchet or bill, or may be readily broken with a large hammer, if heated in a small degree in an oven or on a kiln.

In

In order to enable gentlemen, farmers, and others, to embark in the manufactory, with as little trouble as possible, I shall mention the necessary apparatus and utensils, which are as follow, viz.

A chaff-cutting machine, with two or four knives attached thereto.

A bruising-mill, with double rollers, smooth surface, and double handles.

One or two chaff-sieves of different sized meshes.

A pair of steelyards, with pea, &c.

A bushel measure.

A peck ditto.

A  $\frac{1}{2}$  peck ditto.

A  $\frac{1}{4}$  peck ditto.

One or two broad corn-shovels.

A screw in a frame, for packing the casks, with false heads, &c. in order to force the heads of the casks into the chine.

Cooper's adze, driver, &c.

Small mills and machines are now made for cutting of chaff and compressing the corn, by manual labour only, and constructed on such simple and ingenious principles as to be worked by any person, whether experienced in the method or otherwise. They may be had, at a comparatively small expence, at the following places, viz.

Mr. WINKLOW, St. Margaret's-street, near Cavendish-Square;

Mr.

Mr. STOCKDALE, Holborn;

Mr. STEVENS, White-lion-street, Goodman's-fields,  
White Chapel;

Where may be had most of the mills, machines,  
and utensils, employed in the various parts of agricul-  
ture, with all the improvements lately made under  
the sanction of the honourable Board of Agriculture,  
which soon repay the expence by the numerous ad-  
vantages derived from the use of them.

HAVING





**H**AVING, in the preceding address, pointed out the general object proposed to be attained by introducing into general use cut herbage and compressed corn, in preference to using the same in racks or mangers, in the too long accustomed mode, a few farther observations only are necessary to ascertain the advantages likely to arise from the same, under the title of

## **Impregnated Compressed Fodder,**

**FOR THE SUPPORT OR FATTENING**

**OF ALL KINDS OF**

**C A T T L E,**

**IN THE STABLE, BARN, OR HOVEL,**

But in particular for those

**On-Board of Ships, in Camps, or in Garrisons.**

---

THE advantages arising from the use of Compressed Fodder, in preference to that of hay and corn in the usual way, are, from the great saving in the expenditure and the small room it comparatively occupies; as  
great

great inconvenience has been long felt by gentlemen in the sea-service, or those engaged in foreign expeditions, where much cavalry or other cattle necessarily forms a part, owing to the quantity of room required for stowing of hay, corn, and other necessaries, which at the same time occasion great waste and litter, and are articles of much danger in time of action, from their liability to take fire, and innumerable other inconveniences; to remove which I was induced to try numerous experiments, in order to find out a more convenient mode of package, and at the same time more secure from the several accidents before alluded to. This end I flatter myself has been fully accomplished, as I have the satisfaction to attach hereto the express approbation of several truly respectable characters.

The several kinds of herbage being cut and mixed with various sorts of the nutritive ingredients and compressed corn, when so prepared, may be packed in such a manner as to resist all danger of damage by wet or fire, whether arising from that in time of action, by negligence, or accident.

And another material advantage arises from the quantity which may be compressed so as to occupy but little room; by which means it is rendered extremely convenient for landing or transporting from one place to another, on sudden and unexpected occasions.

As different kinds of food are necessary for the several kinds of cattle, have annexed a general list of

of the several ingredients I have used in the various mixtures, and the state of preparation in which I have found them best to answer the end proposed.

When this is contrasted with the charge and consumption of hay and oats in the usual way, to be consumed in the same period, I have no doubt but the advantages will be found much greater than could be supposed, without putting it into practice, by which means the proofs of its utility will so forcibly appear, as to render the adoption of it a national object.

The corn generally used by me, in preparing the several kinds of fodder, (agreeably to the succeeding tables,) is compressed or bruised prior to the same being used in the general mixture; and, being a second time pressed, when put into the several packages, there is not the smallest particle of the grain lost, nor is it possible for the cattle to avoid masticating the food, even when swallowed by them in the same state in which it is put before them.

This is not the case when corn is given in a perfect and unmixed state. As it is beyond the possibility of a doubt that many horses void their corn in the same perfect and undigested state as when taken from the bin, which may be clearly observed by the number of birds that continually follow the dung of horses, in search of the corn which comes from them in a whole and unchanged state.

To avoid this evil alone will doubtless be a material advantage. Besides that the whole being broken or prepared, and made up in a general mixture, all

the different particles partake of each others good qualities, which makes the whole much more pleasant and nutritive than the same quantity and quality of food would be when given in a separate and unmixed state. And the mixing the ingredients much more effectually preserves their virtue and general sweetness, which is increased rather than diminished. Besides the advantages before enumerated from the adoption of the mixed and compressed fodder, every gentleman and farmer would use up the whole of his offal with the greatest ease, by adding such as is of the most nutritive nature to that of the most inferior, or as circumstances and conveniences may occur; I shall therefore point out such articles as may be introduced and used in the general feed of cattle, which are not generally known. These are principally the halm or stems of potatoes, peas and beans, the tops of field-carrots, and the young shoots of fir-trees, which may be beneficially cut up with the other offal, and added to the general mixture; as may also the offal from the splitting-mills, both of peas and beans, of which there are great quantities now wasted, from the want of a ready sale, and room to stow it away. And this is more especially the case, where the same is done on a large scale, or on account of government.

The difficulty that attends the keeping of bran, when in any large quantity, is generally known to most persons, it being soon liable to heat, (unless constantly turned,) which causes it to become mouldy, and form itself into four and unpleasant lumps, which  
soon

soon spread themselves into and destroy the whole quantity, unless speedily removed and broken. This may be greatly prevented by adding one-fourth part, or an even quantity, of the pea and bean offal from the splitting-mill. These, from the high state in which they are dried, previous to being split, keep the bran from forming lumps, or heating from moisture, which the offal imbibes, and forms of itself a good and cheap food (even unmixed with other ingredients) for sheep, cows, &c. and is ever ready for mixing with other ingredients, such as clover, chaff, corn, beans, or oil-cake, in a broken or pulverized state. When compressed it may be stowed in the loft or bins, or in casks or bags, so that each package will hold double the quantity it would if loosely filled.

Another material advantage arises from the use of this fodder in places where water is scarce, or difficult to come at, especially on ship-board, as it may be damped at the time of using, by which means a great consumption of water will be saved. This intention will be much assisted if boiling water be used, which may be poured on in large quantities, and the fodder be placed so as to let the water drain off, which may be easily accomplished, by boring a few holes in the bottom of a small cask, and placing the same into one in a perfect and tight state; and this liquor may be applied to the use of horses or cattle that are unwell, as it will produce a most rich and nutritive kind of tea, which may be much assisted, if a small quantity of barley-meal could be put into the water during the time it

is boiling, as the smallest possible quantity (even a table-spoon full to a gallon) will both soften, sweeten, and enrich, the water, especially if obtained from springs, which, on a sudden change from soft, is frequently apt to bring on disorders of various kinds, but particularly pains in the bowels.

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In order to remove any doubt that gentlemen may entertain of the fodder, when closely packed and compressed, I have annexed a few, out of a number of letters, received from abroad, which, I flatter myself, the great respectability of the gentlemen from whom they come, will render perfectly clear and satisfactory.

TESTI-

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ba  
bo



## TESTIMONIES

IN FAVOUR OF THE USE OF

**Impregnated Compressed Fodder,**

*PREPARED AND SOLD,*

IN ANY QUANTITY,

**BY S. LAWSON AND Co.**

**No. 9, TOWER-DOCK, LONDON,**

**NEAR THE STAIRS.**

---

N. B. The same fodder may be had, in any quantity above one quarter, properly packed, in casks or bags, for home-consumption, to be used on ship-board, or for exportation.

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*EXTRACTS of sundry LETTERS in favour of  
the use of the COMPRESSED FODDER.*

---

Mr. S. LAWSON, London.

Sir,

*Madeira, Dec. 10.*

WE have now before us your favour of the 25th of May, which incloses us invoices of five hogheads of compressed fodder, which, on arrival, we made use of for our cattle, and distributed it amongst our friends, in consequence of which, we make no doubt, but you will receive many orders. We now inclose an order on Mr. Thomas Shirley, to pay you the amount. We observe one great difficulty in the introduction of your fodder, that none of us here are able to judge of the composition from looking at it. What we had appeared to be very good, and our cattle improved much upon it. We, however, had not time to calculate the expence, and to observe what proportion of straw and barley we used at same time.

If you can put up a food that will support a horse that works but little without the necessity of our adding grain, and give us the number of pounds necessary to give per day, we might probably get what

we

we want, and we would, was it even what would be considered expensive feed in England, be considerable customers to you, and we have no doubt but many others would likewise.

Our expences and the look of our cattle let us know what we are doing with your fodder; straw and grafs we sometimes use too much, and others too little, and we know not how to remedy it.

We have here some very good straw; and, probably, was it cut fine and mixed with a richer kind of food, we might get what we want.

We have always a number of oxen, horses, and mules, and the persons employed to look after them never fail to waste the grafs and straw, and steal the corn, which is impossible for us to prevent: many hundreds here are in the same situation.

We are,

Sir,

Yours, &c.

SHIRLEY, BANGOR, and Co.

---

Mr. S. LAWSON, London.

Sir,

*Madeira, July 10.*

WE have fundry of your favours before us, which have passed a long time unanswered, owing to our occupations having prevented us from making such observations and calculations on the expenditure of

C 4

your

your fodder as would be of any use to you; the servants we get in this country will not do such things for us. We did however make an experience of about two months, (not very exact,) when we found that our cattle was kept in high order, on your fodder only, at much the expence of a horse in London, 10s. 6d. a week.

You have in some degree spoiled us from being so great a customer to you as we otherwise should, by sending us the straw-cutter, which on the smallest computation saves us from 50l. to 60l. per annum, for which you receive our best thanks.

In all warm climates where wheat is grown, such as up the Mediterranean, the machine is invaluable, because, without the straw being cut, one-half, and that the most nutritive part, is lost, because it is so hard when long the cattle cannot eat it.

Messrs. Thomas Shirley and Co. will settle our account with you, and we remain with much respect,

Sir,

Your most obedient humble servants,

SHIRLEY, BANGOR, and Co.

Mr. S. LAWSON, London.

Sir,

*Madeira, August 12.*

HAVING seen with my friend Mr. Bangor, of this place, a sample of your compressed fodder, which you  
put

put up for the support of horses and cattle, which in this place is found to answer every wish required, and is a desirable acquisition; from the scarcity of cattle food in general in this place; I have therefore to request the favour of you to send me, per first opportunity, twenty pipes, iron bound, of 120 gallons each, filled with same kind of fodder as that sent Mr. Bangor, and I in return make you a tender of my services in this place, and am,

Sir,

Your obedient humble servant,

JOSEPH SELBY.

---

Mr. S. LAWSON, London.

Sir,

*Madeira, August 20.*

You will please to ship on our account seventy pipes of your compressed fodder, per the True Briton, Captain Brown, and deliver the account of the same to Mr. Richard Selby, of your place, who will settle with you for the amount.

We are,

Sir,

Your obedient humble servants,

SELBY, TOWNS, and Co.

P. S. As the quality of the fodder you sent Mr. Joseph Selby seems to answer and is well adapted for this place, you will therefore send us same kind and quality.

Mr.

Mr. S. LAWSON, London.

Sir,

*Grenada, August 21.*

You will please to ship on-board Bailey, Captain William Sims, ten puncheons of your compressed fodder, the same kind as that last sent by you for his excellency general Matthews, and am

Your humble servant,

WM. THORNTON.

Number them from 1 to 10, and direct them for his excellency general Matthews, Grenada.

---

Mr. STEPHEN LAWSON, London.

Sir,

*Antigua, August 20.*

HAVING received from Captain Oliver a few hogheads of your compressed fodder, which is most admirably calculated for this place, from the scarcity of cattle herbage, which so generally exists in this place; you will therefore forward me, per first ship for this place, five hogheads of same quality and kind as that before received, and deliver the account to Messrs. James Bailey and Co. who will settle the same with you, and am,

Yours, &c.

LOCKHART RUSSELL.

Mr.



Mr. S. LAWSON, London.

Sir,

*St. Christopher's, August 22.*

I have received the twenty hogheads of fodder you sent me by the Generous Planters, which arrived in perfect order, and was very acceptable, as I distributed them amongst my friends, who universally expressed their approbation; you will therefore send me same quantity by first convenient opportunity, and make no doubt but you will receive many orders from this place, as it will ever be an acceptable article, especially in dry and scarce seasons, and am,

Sir,

Yours sincerely,

JOHN CALFE.

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Mr. S. LAWSON, London.

Sir,

*Portsmouth, March 21, 1796.*

I received yours, but too late to answer it for you to have it this day. The compressed fodder I had of you answered well with me last voyage, or I should certainly not have taken it this.

My sheep were very fond of it. I took care to keep it in a dry place to prevent its getting mouldy, and it kept exceeding well the whole of the voyage. I have used one cask since I left Gravesend, and I find the stock in general are very fond of it.

You

You have my full liberty to make use of this letter as you may think proper; I think there is no doubt but it will support any cattle on-board of ship, as sheep are certainly the nicest feeders.

I am,

Sir,

Your most obedient servant,

JOHN BARFOOT,

Commander of the ship Nottingham,  
East-Indiaman.

---

In addition to the foregoing testimonies, I beg leave to add the opinion of a gentleman whose exertion and experience in farming and agriculture are so well known, as to render any additional sanction to the work unnecessary, when laid before the public.

“ The general features of the paper tend to an improvement in the mode and feeding of cattle, with that of hints for an account of the expence; there is nothing in it which ascertains the effect, but the idea has considerable merit.”

ARTHUR YOUNG.

Sir,

Sir,

*London, April 18, 1796.*

It occurs to me that, as the Board of Agriculture waits for such experiments as may be made on the use of compressed fodder, the more generally your scheme is known the better your purpose will be answered ; I will, therefore, if you approve of it, insert your memoir on its utility in the Annals of Agriculture ; you may therefore signify your pleasure in a line directed to me, No. 48, Jermyn-street.

I am,

Your very humble servant,

ARTHUR YOUNG.

Address, S. LAWSON.

In

In order to enable gentlemen, farmers, or others, to make out their own estimate or expence, for the different mixtures, and at same time to know the exact weight of the same, whether mixed or prepared in large or small quantities, I have annexed

## A T A B L E

Of the cost-price, at which the present tables are calculated, together with the weight of the necessary ingredients used in preparing the same, and the average weight of each kind of corn, grain, &c. used in the various mixtures, both by the quarter and single bushel. They are taken at even weights and price, in order to render the calculations more easy, by adding or diminishing, agreeable to the current prices of the various articles, where the same may be occasionally manufactured.

After these follow abstracts of the several Acts of Parliament now in force for the regulating the buying and selling of hay, straw, and corn, in the London or other markets, with the several amendments made in the last sessions of parliament.

TABLE

## TABLE OF THE COST.

And average weight of the different articles used in the several mixtures mentioned in the following tables.

|                                                             | Cwt. | Qrs. | lbs. |   | £. | s. | d. |
|-------------------------------------------------------------|------|------|------|---|----|----|----|
| Hay and clover, per load, or<br>36 trusses at 56lbs. each - | 18   | 0    | 0    | — | 4  | 0  | 0  |
| Straw, per load, at 36lbs.<br>each truss —                  | 11   | 2    | 8    | — | 1  | 7  | 0  |

| Weight per quarter. |      |      |      | Per bushel.       |      | Price. |    |    |
|---------------------|------|------|------|-------------------|------|--------|----|----|
|                     | Cwt. | qrs. | lbs. |                   | lbs. | £.     | s. | d. |
| Oats —              | 2    | 3    | 12   | —                 | 40   | 1      | 0  | 0  |
| Beans —             | 4    | 1    | 14   | —                 | 60   | 1      | 12 | 0  |
| Barley —            | 3    | 2    | 8    | —                 | 50   | 1      | 12 | 0  |
| Peas —              | 4    | 1    | 14   | —                 | 60   | 1      | 12 | 0  |
| Bean Meal —         | 4    | 0    | 0    | a quarter measure |      | 1      | 12 | 0  |
| Pea Chaff —         | 1    | 0    | 0    | of 16 bushels     |      | 0      | 5  | 0  |
| Bean ditto —        | 1    | 0    | 0    | ditto —           |      | 0      | 6  | 0  |
| Bran —              | 2    | 0    | 0    | 14lbs.            |      | 0      | 8  | 0  |
| Oil-cakes —         | 3    | 0    | 14   | each 3½lbs.       |      | 1      | 0  | 0  |

## TABLE I.

For Common Fodder or Chaff.

| When cut, will produce, in bushels and cwts. |          |                             |       |                     | Cost. |        |          |
|----------------------------------------------|----------|-----------------------------|-------|---------------------|-------|--------|----------|
| Load.                                        | Trusses. | Quality.                    | Bush. | Cwts.               | qr.   | lbs.   | £. s. d. |
| 1                                            | 36       | of clover or<br>cinque foin | 288   | —                   | 18    | 0 0    | 4 0 0    |
| ¼                                            | 9        | of best sweet<br>hay —      | 72    | —                   | 4     | 2 0    | 0 15 0   |
| ½                                            | 18       | of best clean<br>straw —    | 114   | at 36lbs. per truss |       | 5 3 14 | 0 13 6   |
| 1 & ¼                                        | 63       |                             | 474   | 28                  | 1     | 14     |          |

Cost of clover, hay, straw, &c. — — 5 8 6

For 474 bushels, labour cutting, at 1s. per qr. of 16 bushels 1 9 6

Total cost — £ 6 18 0

Observations, with cost and weight of the same, in quarters and bushels, see next page.

Cost and weight, in quarters and per bushel, of common fodder or chaff, as per table, No. 1.

| Quantity of<br>hay, straw, &c.<br>in loads, $1\frac{1}{2}$ | Truf-<br>fes | Cwt. | qr | lbs | produce<br>in bush. | Doub. qrs.<br>qrs. bush. | Sing. do.<br>qrs. bush. | Cost<br>£. s. d. |
|------------------------------------------------------------|--------------|------|----|-----|---------------------|--------------------------|-------------------------|------------------|
|                                                            | 63           | 28   | 1  | 14  | 474                 | 29 10                    | 59 2                    | 6 18             |

Average cost and weight of the above,

|                                              | Qrs. | lbs. | £. | s.              | d.                |
|----------------------------------------------|------|------|----|-----------------|-------------------|
| Per quarter of 16 bushels, or double measure | 3    | 20   | —  | 0               | 4 8               |
| Ditto — of 8 ditto or single ditto           | 1    | 24   | —  | 0               | 2 4               |
| Per single bushel                            | —    | —    | 0  | 6 $\frac{1}{2}$ | 0 6 $\frac{1}{2}$ |

#### OBSERVATIONS.

As the mixture produced by this and the following table, No. 2, forms the basis or ground work of the general mixture, hereafter described, it is sufficient only to observe it may be varied as circumstances arise, and the cost of the same may be easily ascertained, according to the various mixtures of offal which may be added, as the same may be composed of any kind of herbage, however coarse, if in a sweet state and free from must, dirt, or filth.

TABLE



## TABLE II.

For common fodder and chaff, same value as No. I.

| Of clover, hay and straw                                                                                                            | Load          | Trusses    | Bushels |                                         | Cwt. qr   lb. | £. | s. | d.       |
|-------------------------------------------------------------------------------------------------------------------------------------|---------------|------------|---------|-----------------------------------------|---------------|----|----|----------|
| —                                                                                                                                   | 1 & ¼         | 63         | 474     | —                                       | 28 1 14       | 6  | 18 | 0        |
| To which may be added                                                                                                               |               |            |         |                                         |               |    |    |          |
| Quarters                                                                                                                            |               |            |         |                                         |               |    |    |          |
| Of pea-chaff, or hulls of peas, produced from the splitting-mills, —                                                                | 5 of 16 bush. |            | {       | 80 at 7lb. per bush. or 1 cwt. per qr.  | {             | 5  | 0  | 0 at 5s. |
|                                                                                                                                     | — or double   |            |         |                                         |               |    |    |          |
| Bean-chaff, or offal from the splitting-mills, in preparing kernels for the West-India markets, for the use of the negroes, &c. &c. | 5 of ditto    |            | —       | 80 at 7lb. per bush. or 1 cwt. per qr.  | {             | 5  | 0  | 0 at 6s. |
|                                                                                                                                     | —             |            |         |                                         |               |    |    |          |
| Ditto of bran,                                                                                                                      | —             | 5 of ditto | —       | 80 at 14lb. per bush. or 2 cwt. per qr. | —             | 10 | 0  | 0 at 8s. |
| Total number of bushels                                                                                                             |               |            |         |                                         | 48            | 13 | 13 | 0        |
|                                                                                                                                     |               |            |         |                                         | 14            |    |    |          |
|                                                                                                                                     |               |            |         |                                         | Gross weight  |    |    |          |

For observations, with cost and weight of the same in bushels and quarters, see next pages.

TABLE

D

TABLE I and II consolidated.

|                                           | Trusses | Bushels                         | Cwt.               | qrs. | lb. | per load    | £.         | s. | d. |
|-------------------------------------------|---------|---------------------------------|--------------------|------|-----|-------------|------------|----|----|
| One load of clover                        | 36      | —                               | 288                | —    | 0   | —           | 4          | 0  | 0  |
| $\frac{1}{2}$ load good hay               | 9       | —                               | 72                 | —    | 0   | —           | 0          | 15 | 0  |
| $\frac{1}{2}$ load of straw               | 18      | —                               | 114 at 36lb. trufs | 3    | 14  | —           | 0          | 13 | 6  |
| Pea-chaff*                                | 5 qrs.  | —                               | 80                 | 0    | 0   | —           | 1          | 5  | 0  |
| Bean ditto*                               | 5 qrs.  | —                               | 80                 | 0    | 0   | —           | 1          | 10 | 0  |
| Brass*                                    | 5 qrs.  | —                               | 80                 | 0    | 0   | —           | 4          | 0  | 0  |
| Number of quarters                        | 74      | { Cost per                      |                    |      |     |             |            |    |    |
| Weight 2 qrs. 17 lb.                      | —       | { qr. 2s. 4d                    |                    |      |     |             |            |    |    |
| Number of bushels                         | —       | { Cost per                      |                    |      |     |             |            |    |    |
| Neat weight $7\frac{1}{2}$ lb. per bushel | —       | { 714 } bush. 3 $\frac{1}{2}$ d |                    |      |     |             |            |    |    |
| Total weight                              | —       | —                               | 48                 | 1    | 14  | { Cost per  |            |    |    |
|                                           |         |                                 |                    |      |     | cwt. 5s. 8d |            |    |    |
| Expence of cutting 474 bushels of chaff   | —       | —                               | —                  | —    | —   | —           | 1          | 9  | 6  |
|                                           |         |                                 |                    |      |     |             | Total cost | 13 | 0  |

\* These are sold by the double quarter of 16 bushels.

N. B. As this mixture forms the basis of every other, agreeable to the nature of the cattle, the same may be intended to feed, any quantity of cavins or offal from the barn may therefore be added, which may be trod close in some dry place, for occasional use. If a few bushels of common salt be added, and shook up in the general mixture, it will be of much service; and, in case of lying any length of time, I would recommend it to be occasionally turned, and it will improve much by keeping.

OBSERVATIONS on the mixtures and contents of the  
two preceding tables, No. 1 and 2.

The several articles, which compose the mixtures in the foregoing table, are nearly upon a fair and even value, and the price they are calculated at is something under the present price; yet they are still at a much higher rate than the several articles can be worth, on an average price, even in the London markets, but more particularly if manufactured in the country, where many of the heavy expences would be avoided. The charge of cutting, which is calculated agreeable to the extravagant price paid for the same in London, may also be much lessened and avoided, by the use of the machines now successfully used for that purpose, which will, on an average, reduce that expence full one half part.

The charge attending this mixture may be also much reduced in many parts of the country, where large quantities of potatoes, peas, and beans, are grown, by having their halm or stalks made and stacked the same as hay or clover; and if, at the time of stacking, the same were mixed with clover, hay, or straw, and permitted to receive a moderate degree of heat, it would seldom be attended with danger, from the ripe and firm state the pea and bean halm must be in, before the several crops can have been gathered, and a small degree of sun or wind will put them into a state proper for stacking. When cut out, (if they

have gone through a regular degree of heat,) they will be found a most excellent substitute for chaff materials; and they may, with the greatest ease, be cut into chaff, by the use of the machines, and even by hand, if mixed with a proportion of clover or hay. A small quantity of straw should be placed at the bottom of the machine, in order to assist the motion of forcing the materials toward the knife.

In like manner may be used up all kinds of cawns, or hulls of corn, produced in the barn by threshing, &c. which may, at the time of cutting the clover, hay, straw, &c. be put into the middle part of the trough of the cutting-box, and be covered with a layer of clover, hay, or straw. When cut, it should be passed through the chaff-sieve, which not only prevents the long and uncut parts from being mixed with the chaff, but at the same time unites and mixes the various kinds of herbage in a fair and even manner. If any large quantity be kept, the same will be benefitted and improved by being occasionally turned or mixed. The same advantage may be equally obtained by mixing of straw with second-cut clover, and placing the same in layers in the stack, which will not only prevent the clover from heating, but cause the straw to be impregnated with the sap or moisture arising from the clover, and it will make the whole a rich and desirable kind of food, even if given in racks, but more particularly for the purpose of cutting into chaff, for the preparation of mixed fodder.

TABLE

## TABLE III.

For preparing a second sort of fodder for general use of horses or other cattle, where corn or other ingredients can be procured, for occasionally adding to the fodder as used.

| Amount of common fodder or<br>chaff, as per Table No. II. | Quarters | Bufshels | Cwt. | qrs. | lb. | per qr. | Cost     | £.         | s. | d. |
|-----------------------------------------------------------|----------|----------|------|------|-----|---------|----------|------------|----|----|
| Oats compressed                                           | 89       | 2        | 48   | 1    | 14  | 3       | —        | 13         | 13 | 0  |
| Beans ditto                                               | 4        | —        | 11   | 1    | 20  | 20      | —        | 4          | 0  | 0  |
| 100 pulverised oil-cakes                                  | 2        | —        | 8    | 3    | 0   | 32      | —        | 3          | 4  | 0  |
| Two bushels common salt                                   | 1        | —        | 3    | 0    | 14  | 20      | —        | 1          | 0  | 0  |
| Cost per 96½ quarters                                     | 0        | 2        | 1    | 0    | 0   | 7       | per bush | 0          | 14 | 0  |
| Cost per 96½ quarters                                     | 96½      | —        | —    | —    | —   | —       | —        | —          | —  | —  |
| Neat wt. 84 lb.                                           | —        | —        | —    | —    | —   | —       | —        | —          | —  | —  |
| Number of bushels                                         | —        | —        | —    | —    | —   | —       | —        | —          | —  | —  |
| Number of cwt.                                            | —        | —        | 72   | 2    | 20  | —       | —        | 22         | 11 | 0  |
|                                                           |          |          |      |      |     |         |          | Total cost |    |    |

TABLE

## TABLE IV.

For preparing a third sort of fodder for general use of horses or other cattle.

| Amount of common fodder or chaff, as per Table No. II. | Quarters | Bushels | Cwt., qrs., lb. | per qr. s. d. | £. | s. | d. |
|--------------------------------------------------------|----------|---------|-----------------|---------------|----|----|----|
| Oats compressed                                        | — 89 z   | 714     | 48 1 14         | 3 0           | 13 | 13 | 0  |
| Beans ditto                                            | — 5      | 40      | 14 1 4          | 20 0          | 5  | 0  | 0  |
| Barley ditto, or Meal                                  | — 3      | 24      | 13 0 14         | 32 0          | 4  | 16 | 0  |
| 150 Oil-cakes broke                                    | — z      | 16      | 8 0 0           | 32 0          | 3  | 4  | 0  |
| Salt                                                   | — 14     | 12      | 4 2 21          | 20 0 per 100  | 1  | 10 | 0  |
|                                                        | — 0      | 2       | 1 0 0           | 7 0           | 0  | 14 | 0  |
| Number of quarters                                     | — 100 6  |         |                 |               |    |    |    |
| Number of bushels                                      | —        | 808     |                 |               |    |    |    |
| Quantity in cwts.                                      | —        | —       | 89 1 25         |               |    |    |    |
|                                                        |          |         |                 | Total cost    |    | 28 | 0  |
|                                                        |          |         |                 |               |    | 17 | 0  |

TABLE

Cost per  
cwt. 5s 6d

Cost per  
bush. 7d.  
wt. 12½lb



TABLE V.

| Amount of common fodder or chaff, as per Table No. II. | Quarters | Bushels | Cwt. & qrs. | lb. | per qr.    | £. | s. | d.  |
|--------------------------------------------------------|----------|---------|-------------|-----|------------|----|----|-----|
| 89 2                                                   | —        | 714     | 48          | 1   | 3          | 13 | 0  | 0   |
| Oats compressed                                        | 6        | 48      | 16          | 3   | 20         | 0  | 0  | 0   |
| Beans ditto                                            | 3        | 24      | 13          | 0   | 32         | 4  | 16 | 0   |
| Bean meal, or siftings from the splitting-mills        | 2        | 16      | 8           | 0   | 32         | 3  | 4  | 0   |
| Compressed barley or meal                              | 2        | 16      | 8           | 0   | 32         | 3  | 4  | 0   |
| 150 Oil-cakes, broke                                   | 1 4      | 12      | 4           | 2   | 20         | 1  | 10 | 0   |
| Salt                                                   | 0 2      | 2       | 1           | 0   | 7          | 0  | 14 | 0   |
| Number of quarters                                     | 104      |         |             |     |            |    |    |     |
| Number of bushels                                      | —        | —       |             |     |            |    |    |     |
| Quantity in cwts.                                      | —        | —       | 100         | 0   |            |    |    |     |
|                                                        |          |         |             |     | Total cost |    | 33 | 1 0 |

TABLE

D 4

TABLE VI.

| Amount of common fodder or chaff, as per Table No. II. | Quarters | Bufhels | Cwt. | qrs. | lb. | per qr. | £. | s. | d. |
|--------------------------------------------------------|----------|---------|------|------|-----|---------|----|----|----|
| 89 2                                                   | —        | 714     | 48   | 1    | 14  | 3 1     | 13 | 13 | 0  |
| Oats commpressed                                       | 7        | 56      | 19   | 3    | 0   | 20 0    | 7  | 0  | 0  |
| Beans ditto                                            | 4        | 32      | 17   | 2    | 0   | 32 0    | 6  | 8  | 0  |
| Ditto in meal or offal                                 | 2        | 16      | 8    | 0    | 0   | 32 0    | 3  | 4  | 0  |
| Barley commpressed                                     | 2        | 16      | 7    | 0    | 10  | 32 0    | 3  | 4  | 0  |
| Ditto in meal                                          | 2        | 16      | 8    | 0    | 0   | 32 0    | 3  | 4  | 0  |
| Oil-cakes broke                                        | 1 4      | 12      | 4    | 2    | 21  | 20 0    | 1  | 10 | 0  |
| Salt                                                   | 0 2      | 2       | 1    | 0    | 0   | 7 0     | 0  | 14 | 0  |
| Cost per qr. 7s. 3d. wt. 112lb.                        | 108      |         |      |      |     |         |    |    |    |
| Number of quarters                                     | —        |         |      |      |     |         |    |    |    |
| Cost per                                               |          |         |      |      |     |         |    |    |    |
| Number of bufhels                                      | —        | 864     |      |      |     |         |    |    |    |
| Cost per                                               |          |         |      |      |     |         |    |    |    |
| Quantity in cwts.                                      | —        | —       | 104  | 1    | 17  |         |    |    |    |
| Cost per                                               |          |         |      |      |     |         |    |    |    |
| Total cost                                             |          |         |      |      |     |         | 38 | 17 | 0  |

TABLE

TABLE VII.

| Amount of common fodder in chaff, as per Table No. II. | Quarters | Bushels                                                     | Cwt. | qrs. | lb. | per qr.                                  | £. | s. | d. |
|--------------------------------------------------------|----------|-------------------------------------------------------------|------|------|-----|------------------------------------------|----|----|----|
| Oats compressed                                        | 8        | 714                                                         | 48   | 1    | 14  | 3                                        | 13 | 0  | 0  |
| Beans ditto                                            | 4        | 64                                                          | 22   | 2    | 12  | 20                                       | 8  | 0  | 0  |
| Ditto in meal or offal                                 | 3        | 32                                                          | 17   | 2    | 0   | 32                                       | 6  | 8  | 0  |
| Barley compressed                                      | 3        | 24                                                          | 12   | 0    | 0   | 32                                       | 4  | 16 | 0  |
| Ditto in meal or rubble                                | 3        | 24                                                          | 10   | 2    | 18  | 32                                       | 4  | 16 | 0  |
| 150 Oil-cakes                                          | 14       | 24                                                          | 12   | 0    | 0   | 32                                       | 4  | 16 | 0  |
| Salt                                                   | 02       | 12                                                          | 4    | 2    | 21  | 20                                       | 1  | 10 | 0  |
|                                                        |          | 2                                                           | 1    | 0    | 0   | 7                                        | 0  | 14 | 0  |
| Number of quarters                                     | 112      | Cost per qr.<br>7s. 11d. Neat<br>wt. 1 cwt. 1 qr.<br>16 lb. |      | 3    | 9   | Cost per<br>bush. 12 1/2 d<br>wt. 16 lb. |    |    |    |
| Number of bushels                                      | 896      |                                                             |      | 128  | 3   |                                          |    |    |    |
| Quantity in cwt.                                       |          |                                                             |      |      |     | Total cost                               |    |    |    |
|                                                        |          |                                                             |      |      |     | £.                                       | s. | d. |    |
|                                                        |          |                                                             |      |      |     | 44                                       | 13 | 0  |    |

TABLE

TABLE VIII.

| Amount of common fodder or chaff, as per Table No. II. — 89 z | Quarters | Bushels                               | Cwt. qrs. | lb. | per qr. | per cwt. | £. | s. | d. |
|---------------------------------------------------------------|----------|---------------------------------------|-----------|-----|---------|----------|----|----|----|
| Oats compressed                                               | —        | 714                                   | 48        | 1   | 14      | —        | 13 | 13 | 0  |
| Beans ditto                                                   | —        | 72                                    | 25        | 1   | 24      | —        | 9  | 0  | 0  |
| Ditto in meal or offal                                        | —        | 40                                    | 21        | 3   | 14      | —        | 8  | 0  | 0  |
| Barley compressed                                             | —        | 24                                    | 12        | 0   | 0       | —        | 4  | 16 | 0  |
| Ditto in meal                                                 | —        | 24                                    | 10        | 2   | 18      | —        | 4  | 16 | 0  |
| 150 Oil-cakes broke                                           | —        | 24                                    | 12        | 0   | 0       | —        | 4  | 16 | 0  |
| Two bushels common salt                                       | —        | 12                                    | 4         | 2   | 21      | —        | 1  | 10 | 0  |
|                                                               | —        | 2                                     | 1         | 0   | 0       | —        | 0  | 14 | 0  |
| Number of quarters                                            | —        | Cost per qr. 8s. 4d. wt. 1 cwt. 20lb. | 114       | —   | —       | —        | —  | —  | —  |
| Number of bushels                                             | —        | Cost per bush 12½d. wt. 16½lb.        | 912       | —   | —       | —        | —  | —  | —  |
| Quantity in cwt.                                              | ....     | —                                     | 136       | 0   | 7       | —        | —  | —  | —  |
| Total cost                                                    |          |                                       |           |     |         |          | 47 | 5  | 0  |

TABLE

TABLE IX.

| Amount of common fodder or chaff, as per Table No. II. | Quarters | Bushels                                       | Cwt.                                   | qrs. | lb.                     | per qr.      | L. | s. | d. |
|--------------------------------------------------------|----------|-----------------------------------------------|----------------------------------------|------|-------------------------|--------------|----|----|----|
| Oats compressed                                        | 89 2     | 714                                           | 48                                     | 1    | 14                      | 3 1          | 13 | 13 | 0  |
| Beans ditto                                            | 10       | 80                                            | 28                                     | 1    | 8                       | 20 0         | 10 | 0  | 0  |
| Ditto in meal or offal                                 | 5        | 40                                            | 21                                     | 3    | 14                      | 32 0         | 8  | 0  | 0  |
| Barley compressed                                      | 4        | 32                                            | 16                                     | 0    | 0                       | 32 0         | 6  | 8  | 0  |
| Ditto in meal or rubble                                | 4        | 32                                            | 14                                     | 0    | 26                      | 32 0         | 6  | 8  | 0  |
| 150 Oil-cakes                                          | 1 4      | 32                                            | 16                                     | 0    | 0                       | 32 0         | 6  | 8  | 0  |
| Two bushels common salt                                | 0 2      | 12                                            | 4                                      | 2    | 21                      | 20 0 per 100 | 1  | 10 | 0  |
|                                                        |          | 2                                             | 1                                      | 0    | 0                       | 7 0 per bush | 0  | 14 | 0  |
| Number of quarters                                     | 118      | Cost per qr. qrs.<br>Neat wt. 1 qr.<br>22 lb. |                                        |      |                         |              |    |    |    |
| Number of bushels                                      | —        | 944                                           | Cost per<br>bush. 1s 1½<br>wt. 16½ lb. |      |                         |              |    |    |    |
| Quantity in cwt's.                                     | —        | 150                                           | 1                                      | 27   | Cost per<br>cwt. 7s. 1d |              |    |    |    |
|                                                        |          |                                               |                                        |      | Total cwt               |              | 53 | 1  | 0  |

TABLE

TABLE X.

| Amount of common fodder or chaff, as per Table No. II. | Quarters | Bushels | Cwt. | qrs. | lb. | per qr. | £. | s. | d. |
|--------------------------------------------------------|----------|---------|------|------|-----|---------|----|----|----|
| 89 2                                                   | —        | 714     | 48   | 1    | 14  | 3       | 13 | 13 | 0  |
| 11                                                     | —        | 88      | 28   | 1    | 8   | 20      | 11 | 0  | 0  |
| 5                                                      | —        | 40      | 21   | 3    | 14  | 0       | 8  | 0  | 0  |
| 4                                                      | —        | 32      | 16   | 0    | 6   | 32      | 6  | 8  | 0  |
| 5                                                      | —        | 40      | 17   | 3    | 0   | 0       | 8  | 0  | 0  |
| 5                                                      | —        | 40      | 20   | 0    | 0   | 32      | 8  | 0  | 0  |
| 14                                                     | —        | 12      | 4    | 2    | 21  | 0       | 1  | 10 | 0  |
| 0 2                                                    | —        | 2       | 1    | 0    | 0   | 0       | 0  | 14 | 0  |
| Cost per qr. 9s. 6d.                                   | —        | —       | —    | —    | —   | —       | —  | —  | —  |
| Neat wt. 1 cwt.                                        | —        | —       | —    | —    | —   | —       | —  | —  | —  |
| 1qr. 8lb.                                              | —        | —       | —    | —    | —   | —       | —  | —  | —  |
| Cost per bush. 1s 2 1/2                                | —        | —       | —    | —    | —   | —       | —  | —  | —  |
| wt. 18 1/2 lb.                                         | —        | —       | —    | —    | —   | —       | —  | —  | —  |
| Quantity in cwt.                                       | —        | —       | 158  | 0    | 7   | —       | 57 | 5  | 0  |
| Total cost                                             |          |         |      |      |     |         | 57 | 5  | 0  |

TABLE



TABLE XI.

| Amount of common fodder or chaff, as per Table No. II. | Quarters | Bushels                              | Cwt.                               | qr. | lb. | per qr. | per 100 | per bush | £. | s. | d. |
|--------------------------------------------------------|----------|--------------------------------------|------------------------------------|-----|-----|---------|---------|----------|----|----|----|
| Oats compressed                                        | 89 2     | 714                                  | 48                                 | 1   | 14  | 3       | 1       | —        | 13 | 13 | 0  |
| Beans ditto                                            | 12       | 96                                   | 31                                 | 0   | 20  | 20      | 0       | —        | 12 | 0  | 0  |
| Bean meal or offal                                     | 6        | 48                                   | 26                                 | 1   | 0   | 32      | 0       | —        | 9  | 12 | 0  |
| Barley compressed                                      | 4        | 32                                   | 16                                 | 0   | 6   | 32      | 0       | —        | 6  | 8  | 0  |
| Ditto in meal or rubble                                | 5        | 40                                   | 17                                 | 3   | 6   | 32      | 0       | —        | 8  | 0  | 0  |
| 200 Oil-cakes broke                                    | 5        | 40                                   | 20                                 | 0   | 0   | 32      | 0       | —        | 8  | 0  | 0  |
| Two bushels of common salt                             | 0 2      | 16                                   | 6                                  | 1   | 0   | 20      | 0       | per 100  | 2  | 0  | 0  |
|                                                        |          | 2                                    | 1                                  | 0   | 0   | 7       | 0       | per bush | 0  | 14 | 0  |
| Number of quarters                                     | 123½     | Cost per qr. 9s. 7d. Neat wt. 1 cwt. |                                    |     |     |         |         |          |    |    |    |
|                                                        |          |                                      |                                    |     |     |         |         |          |    |    |    |
| Number of bushels                                      | —        | 988                                  | Cost per bush. 1s 2½d. wt. 18½ lb. |     |     |         |         |          |    |    |    |
|                                                        |          |                                      |                                    |     |     |         |         |          |    |    |    |
| Quantity in cwt.                                       | —        | —                                    | Cost per cwt. 7s. 3d.              |     |     |         |         |          |    |    |    |
|                                                        |          |                                      |                                    |     |     |         |         |          |    |    |    |
| Total cost                                             |          |                                      |                                    |     |     |         |         |          | 60 | 7  | 0  |

TABLE

TABLE XII.

[illegible]

TABLE XIII.

[illegible]

# TAB L E

TABLE XIV.

[illegible]

TABLE

**OBSERVATIONS and RULES** to be observed in preparing the various mixtures, agreeable to the foregoing Fourteen Tables.

WHEN the chaff is cut or prepared for mixing, let it be spread on a dry and boarded floor in the proportion of about one quarter part of the whole quantity; then let the various kinds of corn and other ingredients be put on in the same proportion, and the layers be repeated until the whole is made up. Particular attention should then be paid to have the mixture lightly turned over from the bottom, and thoroughly incorporated, and well separated in the turning, to prevent the particles from adhering together. This operation should be repeated twice, at least, previous to placing it in the binn, where the mixture should be compressed as closely as possible. When given to cattle, the use of scales is strongly recommended, to ascertain the exact quantity, in preference to a measure, as much difference may arise from filling a measure with the mixture in a more compressed or more loose state.

By the preceding tables, any necessary quantity of food may be prepared, as I have endeavoured to take, as nearly as possible, a fair average weight of each article, which I have calculated at even parts, without having recourse to fractions, but stating the price and weight so as to leave the balance, if any, in favour of the stock in hand.

E

Another

Another advantage may be made in using this kind of mixed food, where potatoes or carrots are abundantly grown, as they may be cut in as small particles as convenient and given to the cattle, mixed with the daily allowance of fodder, observing to begin with a small quantity; and horses, and almost every other kind of cattle, will be found to be very fond of the diet, and to thrive exceedingly, after being a little time used to it. Care should be taken not to add more carrots or potatoes to the fodder than are necessary for the day's consumption, unless prepared and kiln dried, agreeable to the following tables, which are calculated for different kinds of stock, and will enable any person to prepare the quantity necessary for their consumption, ascertaining, at the same time, the expence attending it.

When given to cattle, the use of scales is strongly recommended, to ascertain the exact quantity, in preference to a measure, as much difference may arise from filling a measure with the mixture in a more compacted or more loose state.

By the preceding tables, any necessary quantity of food may be prepared, as I have endeavoured to make as nearly as possible, a fair average weight of each article, which I have calculated at even parts, without having recourse to fractions, but finding the price of the food, as to leave the balance, I say, in

TABLE



## T A B L E XV.

Mixture of Compressed Fodder, more particularly adapted for the use of Sheep, or other horned Cattle.

|                                    | Quarters                 | Bushels                 | Cwt.       | qrs. | lb. | s.                     | d. | per qr. | £. | s. | d. |
|------------------------------------|--------------------------|-------------------------|------------|------|-----|------------------------|----|---------|----|----|----|
| One load of good clover            | — 36                     | 288                     | 18         | 0    | 0   | —                      | —  | —       | 4  | 0  | 0  |
| Half a load of meadow hay          | — 18                     | 144                     | 9          | 0    | 0   | —                      | —  | —       | 1  | 10 | 0  |
| Ditto of straw                     | — 18                     | 144                     | 5          | 3    | 14  | —                      | —  | —       | 1  | 13 | 6  |
| Pea chaff, single quar. of 8 bush. | 10                       | 80                      | 5          | 0    | 0   | —                      | —  | —       | 1  | 5  | 0  |
| Bran or pollard, ditto             | — 10                     | 80                      | 10         | 0    | 0   | —                      | —  | —       | 2  | 0  | 0  |
| Oats compressed                    | — 10                     | 80                      | 28         | 1    | 8   | —                      | —  | —       | 10 | 0  | 0  |
| Grey-peas ditto                    | — 5                      | 40                      | 21         | 3    | 14  | —                      | —  | —       | 8  | 0  | 0  |
| 500 Oil-cakes, broke               | — 5                      | 40                      | 15         | 2    | 14  | —                      | —  | —       | 5  | 0  | 0  |
| 16 Bushels kiln-dried carrots      | — 2                      | 16                      | 5          | 2    | 20  | —                      | —  | —       | 1  | 12 | 0  |
| 16 Bushels ditto potatoes          | — 2                      | 16                      | 5          | 2    | 20  | —                      | —  | —       | 1  | 18 | 0  |
| Two bushels common salt            | — 0                      | 2                       | 1          | 0    | 0   | —                      | —  | —       | 0  | 14 | 0  |
|                                    | — { Cost per qr. 6s. 1d½ |                         |            |      |     |                        |    |         |    |    |    |
| Number of quarters                 | — 116                    | — { nt. wt. 1 qu. 18 lb |            |      |     |                        |    |         |    |    |    |
| Number of bushels                  | —                        | — { Cost per bush. 8d½  |            |      |     |                        |    |         |    |    |    |
|                                    | —                        | 930 { wt. 16½ lb.       |            |      |     |                        |    |         |    |    |    |
| Quantity in cwt.s.                 | —                        | —                       | 126        | 0    | 6   | { Cost per cwt. 5s. 7d |    |         |    |    |    |
|                                    |                          |                         | 126        | 0    | 6   |                        |    |         |    |    |    |
|                                    |                          |                         | Total cost |      |     | 53                     | 12 | 6       |    |    |    |

## TABLE XVI.

For preparing a food for feeding or fattening of hogs, pigs, &amp;c.

| Pea chaff or offall, from the splitting-mills | Quarters | Bushels | Cwt. qrs. | lb. | per qr.<br>s. d. | £. | s. | d. |
|-----------------------------------------------|----------|---------|-----------|-----|------------------|----|----|----|
| Bran in pollard                               | — 20     | 160     | 0         | 0   | 2 6              | —  | 10 | 0  |
| Grey-peas, compressed                         | — 20     | 160     | 0         | 0   | 4 0              | —  | 0  | 0  |
| Barley meal                                   | — 10     | 80      | 3         | 0   | 32 0             | 16 | 0  | 0  |
| Beans ditto                                   | — 5      | 40      | 0         | 0   | 32 0             | 8  | 0  | 0  |
| Potatoe meal, kiln-dried                      | — 5      | 40      | 2         | 0   | 32 0             | 8  | 0  | 0  |
| Carrots, dried                                | — 1      | 8       | 0         | 0   | 3 0              | 3  | 0  | 0  |
| 500 Oil-cakes broke                           | — 5      | 40      | 2         | 2   | 20 0             | 1  | 4  | 0  |
| Number of quarters                            | — 71     |         | 15        | 2   |                  | 5  | 0  | 0  |
| Number of bushels                             | —        |         | 135       | 1   |                  |    |    |    |
| Quantity in cwt.                              | ....     |         |           | 14  |                  |    |    |    |
| Total cost                                    |          |         |           |     |                  | 47 | 14 | 0  |

TABLE

## T A B L E XVII.

For preparing a mixture of rich and nutritive ingredients, for adding occasionally, in using the several mixtures, as per Tables, No. 1 to 14.

|                                                    | Quarters | Bushels                                  | Cwt. 1 qrs. | lb. | per qr. s. d. | per 100 s. d.       | £.         | s. | d. |
|----------------------------------------------------|----------|------------------------------------------|-------------|-----|---------------|---------------------|------------|----|----|
| 500 Oil-cakes, broke, or reduced to powder         | —        | —                                        | 15          | 2   | 14            | —                   | 5          | 0  | 0  |
| Oats compressed                                    | 5        | —                                        | 14          | 1   | 14            | —                   | 5          | 0  | 0  |
| Beans ditto                                        | 5        | —                                        | 12          | 0   | 0             | —                   | 4          | 16 | 0  |
| Bean-meal                                          | 3        | —                                        | 8           | 0   | 0             | —                   | 3          | 4  | 0  |
| Compressed barley                                  | 3        | —                                        | 10          | 2   | 18            | —                   | 4          | 16 | 0  |
| Horfe-pollard                                      | 5        | —                                        | 5           | 0   | 0             | —                   | 1          | 0  | 0  |
| Bean hulls, or pea-chaff, from the splitting-mills | 5        | —                                        | 2           | 2   | 0             | —                   | 1          | 10 | 0  |
| Number of quarters                                 | 28       | Cost per qr. 18s. wt. 2cwt. 1 quar. 20lb | 68          | 0   | 18            | Cost per cwt. 7s 6d | Total cost | 25 | 6  |
| Number of bushels                                  | —        | —                                        | —           | —   | —             | —                   | —          | —  | —  |
| Quantity in cwt.                                   | —        | —                                        | —           | —   | —             | —                   | —          | —  | —  |

Charges of keep for horses in the stable, when fed with hay and corn; with the quantity necessary per week for the several descriptions and kinds.

|                 | Nag Horses. |      | Hunters. |      | Coach Horses. |      | Cart or Dray Horses. |      |
|-----------------|-------------|------|----------|------|---------------|------|----------------------|------|
|                 | s.          | d.   | s.       | d.   | s.            | d.   | s.                   | d.   |
| Hay, 2 trusses  | —           | 5 0  | —        | 6 3  | —             | 6 3  | —                    | 6 3  |
| Clover, —       | —           | —    | —        | —    | —             | —    | —                    | —    |
| Oats, 1½ bushel | —           | 3 9  | —        | 5 0  | —             | 5 0  | —                    | 5 0  |
| Beans, 1 peck   | —           | 1 0  | —        | 1 0  | —             | 1 0  | —                    | 1 0  |
| Chaff, ½ bushel | —           | 0 3  | —        | 0 3  | —             | 0 6  | —                    | 0 6  |
| Bran, 1 peck    | —           | 0 3  | —        | 0 3  | —             | 0 6  | —                    | 0 6  |
| Cost per week   | —           | 10 3 | —        | 12 9 | —             | 13 9 | —                    | 15 6 |

Directions,

Directions, when using the Compressed Fodder, agreeably to the several Tables, No. from 2 to 14, for Horses.

| No. 2. Nag Horses.           | Hunters.                       | Coach Horses.                  | Cart or Dray Horses.         |
|------------------------------|--------------------------------|--------------------------------|------------------------------|
| s. d.                        | s. d.                          | s. d.                          | s. d.                        |
| Common fodder, 8 bush. 3 0   | 8 bushels —                    | 9 bushels —                    | 13 bushels —                 |
| Compressed oats, 1 bush. 2 6 | 1 bushel and $\frac{1}{2}$ 3 9 | 1 bushel and $\frac{1}{2}$ 3 9 | 1 bushel and $\frac{1}{2}$ — |
| Beans ditto, 1 peck 1 0      | 1 peck —                       | 1 peck and $\frac{1}{2}$ 1 6   | 2 pecks —                    |
| Hay or clover, 1 truss 2 6   | 1 truss and $\frac{1}{2}$ 3 9  | 1 truss and $\frac{1}{2}$ 3 9  | 1 truss —                    |
|                              | —                              | —                              | —                            |
| Add Carrots cut 9 0          | Carrots —                      | Carrots —                      | Carrots or potatoes 13 0     |
| Cost per week — 9 6          | — 12 0                         | — 13 0                         | Cost per week — 13 6         |

N. B. In using the fodder and corn, agreeably to the above statement, it is particularly recommended to have all the corn, slightly bruised or compressed in the flating-mill, which will not only render the same much more nutritive, but cause an increase of measure nearly equal to one-fifth part. It should be all mixed in an even manner with the chaff or fodder, and trodden close in the binn. If a handful of salt be thrown into the mixture it will be much improved: but that will not be required when the stock is prepared from the other Tables, as a small quantity is set down to be added to each, in proportion to the amount of the mixture; but it must be observed, that, if the carrots or potatoes are not, previous to the mixing, cut and dried by a kiln, or by some other means, they should only be added to the fodder daily.

In using the fodder, prepared agreeably to the other Tables, from No. 14, and upwards, the same rule must be observed as laid down for No. 2; viz. Charge the cost of the number of bushels of fodder used, adding as much corn as will bring the same to the average expence, and allowing the charge for what hay and clover you think proper to give; by which means the advantages arising from the use of cut herbage and compressed corn will be soon ascertained, and proved to exceed the proportion of oats in eight; which, added to the beneficial consumption of many articles, now nearly thrown away, will tend to fulfil the purpose of this publication; viz. the Public good.

As many persons who keep a small number of horses, &c. may be inclined to use the fodder here recommended, if prepared under their own direction, or the inspection of their servants, I have annexed a few Tables, calculated for the consumption of horses of different descriptions for one week, which may be extended or contracted at pleasure, or according to the room for stowing the same away when prepared.

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### For a Nag Horse.

To be mixed together.

|                                                      | lbs.            |                | bush. peck | s. d.             |
|------------------------------------------------------|-----------------|----------------|------------|-------------------|
| $\frac{1}{4}$ Truss of clover, -                     | 28              | when cut       | 4 0 cost   | 1 3               |
| ditto hay, -                                         | 14              | —              | 2 0 —      | 0 7 $\frac{1}{2}$ |
| ditto best wheat straw -                             | 9               | —              | 2 0 —      | 0 2 $\frac{1}{4}$ |
| Charge of cutting, -                                 | 0               | —              | 0 0 —      | 0 6               |
| $\frac{1}{2}$ Bushel of oats compressed, -           | 40              | will increase  | 1 1 —      | 2 6               |
| $\frac{1}{2}$ Peck of beans, -                       | 15              | —              | 0 1 —      | 1 0               |
| $\frac{1}{2}$ ditto of bran, -                       | 3 $\frac{1}{2}$ | —              | 0 1 —      | 0 3               |
| $\frac{1}{2}$ Bushel of pea chaff, -                 | 3 $\frac{1}{2}$ | —              | 0 2 —      | 0 3               |
| $\frac{1}{2}$ Truss of hay to be given }<br>uncut, - | 56              | equal to       | 8 0 —      | 2 6               |
| Number of lbs. weight, -                             | 169             | No. of bush, - | 18 1       | 9 0 $\frac{1}{4}$ |

I have not noticed the expence of compressing the corn, as I conceive the increase of measure (amounting nearly to one-fifth part, will be a full compensation for the labour.

N. B. Add about 1lb. of salt.

For



## For a Hunter.

To be mixed together.

|                                                                  | lbs.            |              | bush. peck | s. d.              |
|------------------------------------------------------------------|-----------------|--------------|------------|--------------------|
| Trufs of clover, - -                                             | 28              | —            | 4 0 —      | 1 3                |
| ditto of hay, - -                                                | 14              | —            | 2 0 —      | 0 7 $\frac{1}{2}$  |
| ditto of straw, - -                                              | 9               | —            | 2 0 —      | 0 2 $\frac{1}{2}$  |
| Charge of cutting, - -                                           | 0               | —            | 0 0 —      | 0 6                |
| 1 $\frac{1}{2}$ Bushel oats compressed, 60                       | —               | —            | 1 2 —      | 3 9                |
| 1 Peck of beans, - -                                             | 15              | —            | 0 1 —      | 1 0                |
| 1 ditto of bran, - -                                             | 3 $\frac{1}{2}$ | —            | 0 1 —      | 0 3                |
| $\frac{1}{2}$ Bushel pea-chaff, - -                              | 3 $\frac{1}{2}$ | —            | 0 2 —      | 0 3                |
| Common salt, - -                                                 | 1               | —            | 0 0 —      | 0 1                |
| 1 $\frac{1}{2}$ Trufs of hay, to be given }<br>uncut - - - - - } | 84              | equal to     | 12 0 —     | 3 9                |
| Number of lbs. weight, -                                         | 218             | No. of bush. | 22 2 —     | 11 7 $\frac{1}{2}$ |

## For a Pair of Coach Horses.

To be mixed together.

|                                                     | lbs.              |              | bush. pecks. | s. d.              |
|-----------------------------------------------------|-------------------|--------------|--------------|--------------------|
| 2 Trusses of clover, - -                            | 112               | —            | 16 0 —       | 5 0                |
| ditto of hay, - -                                   | 28                | —            | 4 0 —        | 1 3                |
| ditto of straw, - -                                 | 18                | —            | 4 0 —        | 0 4 $\frac{1}{2}$  |
| Charge of cutting - -                               | 0                 | —            | 0 0 —        | 1 6                |
| 3 Bushels compressed oats 120                       | —                 | —            | 3 2 —        | 7 6                |
| 3 Pecks of beans compressed, 45                     | —                 | —            | 0 3 —        | 3 0                |
| 3 ditto bran - -                                    | 10 $\frac{1}{2}$  | —            | 0 3 —        | 0 9                |
| 1 Bushel of pea-chaff, - -                          | 7                 | —            | 1 0 —        | 0 6                |
| Common salt, - -                                    | 2                 | —            | 0 0 —        | 0 2                |
| 2 Trusses of hay to be given }<br>uncut - - - - - } | 112               | equal to     | 16 0 —       | 5 0                |
| Number of lbs. weight                               | 354 $\frac{1}{2}$ | No. of bush. | 46 0 —       | 25 7 $\frac{1}{2}$ |

Cost per week, each, 12s.6d.

For

For Oxen or Cows.  
To be mixed together.

|                                              | lbs.  |     | bufl.      | pecks. | s.   | d.     |
|----------------------------------------------|-------|-----|------------|--------|------|--------|
| 2 Trusses of clover,                         | - 112 | —   | 16         | 0      | —    | 5 0    |
| 1 Ditto of soft hay                          | - 56  | —   | 8          | 0      | —    | 2 6    |
| 1 Ditto of straw                             | - 36  | —   | 8          | 0      | —    | 0 9    |
| 8 Bushels of bran                            | - 112 | —   | 8          | 0      | —    | 6 0    |
| 8 Ditto of pea-chaff                         | - 56  | —   | 8          | 0      | —    | 4 0    |
| 50 Oil-cakes, broken, $3\frac{1}{2}$ lb. ea. | 175   | —   | 3          | 0      | —    | 10 0   |
| 4 Bushels compressed oats                    | 160   | —   | 4          | 2      | —    | 10 0   |
| 2 Ditto barley meal                          | - 112 | —   | 2          | 0      | —    | 8 0    |
| Number of lbs. weight                        |       | 819 | No. of bu. |        | 57 2 | £2 6 3 |

To the above mixture, when intended for sheep, may be added about eight bushels of compressed grey peas; also potatoes or carrots, cut in the green state, and mixed as used, after being dried on a kiln, as before mentioned, for cows in milk or others. The mixture will be much benefitted by being wetted with boiling water, and the steam covered in till cold, or nearly so.

For Hogs or Pigs.  
To be mixed together.

|                               | lbs.              |                   | bufl.      | pecks. | s.   | d.     |
|-------------------------------|-------------------|-------------------|------------|--------|------|--------|
| 1 Bushel grey-peas compressed | 60                | —                 | 1          | 0      | —    | 4 0    |
| 1 Ditto barley meal           | - 56              | —                 | 1          | 0      | —    | 4 0    |
| 1 Ditto bean ditto            | - 60              | —                 | 1          | 0      | —    | 4 0    |
| 4 Ditto fine pollard          | - 64              | —                 | 4          | 0      | —    | 4 0    |
| 8 Ditto pea-chaff             | - 72              | —                 | 8          | 0      | —    | 3 0    |
| 25 Oil-cakes broken           | - $87\frac{1}{2}$ | —                 | 0          | 4      | —    | 5 0    |
| Number of lbs. weight         |                   | 399 $\frac{1}{2}$ | No. of bu. |        | 18 4 | £1 4 0 |

To the above may be added potatoes, carrots, or other offal. To be wetted with boiling water, if possible, but not more at a time, than will be used in the course of one or two days. When intended for fattening, an addition may be made of grey-peas or barley meal.

*Impressed with the most lively sense of gratitude for the favourable reception these few observations have met with from several gentlemen who have perused them, and under the idea, that many others will exert themselves in making improvements on the same, I have annexed a few farther particulars, which have occurred to me in my endeavours to bring the fodder to as much perfection and certainty as I was able, both for use and keeping.*

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OBSERVATIONS on the method of manufacturing the several articles, enumerating such as appear best adapted for the purpose.

**T**HE clover for the chaff should be of the best kind, and free from mold or filth of any kind; but, if cinque foïn can be procured, it answers the purpose nearly if not equally as well as clover. Should the clover or cinque foïn be in trusses, the bands must not be cut in, as the binders generally use the filth or rubbish for that purpose.

The same is to be observed with hay, which should always be clean and sweet. If well taken, the heat will be pleasant to the cattle, and the hay will give to the whole mixture a pleasant smell and flavour. But observe not to cut such as is over burnt or black; as, notwithstanding it adds something to the smell, it diminishes the quality.

Wheat

Wheat straw I have found to answer the purpose best; but any other may be used, observing that the more of the ears or cavins are used the better; and take care to have sufficient of the long stuff to assist the chaff-cutter, either when done by hand or by the machine.

When the chaff is cut, it should be sifted through a proper sieve, made on purpose, and of the finest kind; as the smaller the chaff the better the mixture will be: and the long stuff, left from the sifting, may be again put into the chaff-box and re-cut, until the whole will pass through the sieve.

When the corn and other ingredients are mixed with the chaff, care should be taken to have them well mixed and put on a dry boarded floor. The whole must be occasionally turned over, to prevent the bottom from forming itself into a close substance, by its partaking in a greater proportion of the more rich particles.

When the mixture is measured out, it should be well shook up and loosened, or a great deficiency will appear in the quantity, owing to the small particles of corn, &c. filling up the tubes of the herbage, and being, on each time of turning, thereby reduced in quantity. But the most certain and exact mode is to use scales in preference to measures.

The carrots and potatoes may be cut either by hand or by the machine, taking care that they are well dried by the kiln, or some other way, prior to being put into the general mixture. But this will seldom be required but for exportation or when necessity requires the same to be packed.

That

That this fodder will keep any length of time, when properly mixed, there is not the smallest particle of doubt; but when there is a convenient opportunity of giving the whole, when mixed, a slight touch of the kiln, so as just to warm it barely, it will be materially beneficial, and render it a substantial and hearty food for horses of the fleetest kind; as I conceive the kiln (which must be of the common kind, for tiles) does not exhale any of the nutritive qualities but only evaporates the watery parts.

Having before pointed out the general method of using the fodder, especially in places where water is scarce, I have only now to observe, that great advantage will arise either from boiling the same, in as much water as will cover the fodder, or by pouring on it some boiling water, and letting it stand covered over until cold, with the steam confined. Much advantage will arise if a handfull of barley-meal be put into the water at the time of boiling, as it will be found materially to soften spring or hard water.

The benefit arising from the use of a common tile-kiln, may be readily ascertained by putting a small quantity of the fodder into hair-bags, and placing them at the back of an oven or other place where the heat is regular, but not over strong.

Annexed is a table of the several measures used in the purchase and sale of corn, together with the mode and charges of pressing hay, when intended for shipping, or for the use of cavalry in camps, and for the more readily supplying the London markets.

A  
TABLE  
OF  
DRY MEASURE.

|                      |   |   |      |   |   |             |
|----------------------|---|---|------|---|---|-------------|
| 2 Pints              | — | — | make | — | — | 1 Quart.    |
| 2 Quarts             | — | — | —    | — | — | 1 Pottle.   |
| 2 Pottles            | — | — | —    | — | — | 1 Gallon.   |
| 2 Gallons            | — | — | —    | — | — | 1 Peck.     |
| 4 Pecks              | — | — | —    | — | — | 1 Bushel.   |
| 2 Bushels            | — | — | —    | — | — | 1 Strike.   |
| 4 Bushels            | — | — | —    | — | — | 1 Coom.     |
| 2 Cooms or 8 Bushels | — | — | —    | — | — | 1 Quarter.  |
| 4 Quarters           | — | — | —    | — | — | 1 Chaldron. |
| 5 Quarters           | — | — | —    | — | — | 1 Wey.      |
| 2 Weys               | — | — | —    | — | — | 1 Laft.     |
| 36 Bushels           | — | — | —    | — | — | 1 Chaldron. |

|                     |     |         |       |         |         |       |          |         |
|---------------------|-----|---------|-------|---------|---------|-------|----------|---------|
| Solid Inches.       |     |         |       |         |         |       |          |         |
| 268 $\frac{1}{2}$   | 1   | Gallon, |       |         |         |       |          |         |
| 537 $\frac{1}{2}$   | 2   | 1       | Peck. |         |         |       |          |         |
| 2150 $\frac{3}{4}$  | 8   | 4       | 1     | Bushel. |         |       |          |         |
| 4300 $\frac{1}{2}$  | 16  | 8       | 2     | 1       | Strike. |       |          |         |
| 8601 $\frac{1}{2}$  | 32  | 16      | 4     | 2       | 1       | Coom. |          |         |
| 17203 $\frac{1}{2}$ | 64  | 32      | 8     | 4       | 2       | 1     | Quarter. |         |
| 86106               | 320 | 160     | 20    | 20      | 10      | 5     | 1        | Wey.    |
| 172032              | 640 | 320     | 80    | 40      | 20      | 10    | 2        | 1 Laft. |

The Bushel, in Water Measure is — 5 Pecks.

A Load of Corn — — — 5 Bushels.

A Cart Load of Ditto — — — 40 Bushels.

N.B. The Standard Bushel is 18 $\frac{1}{2}$  Inches wide and 8 Inches deep.



|                                                     |   |    |         | Cwt. | Qr. | lb          |
|-----------------------------------------------------|---|----|---------|------|-----|-------------|
| A load of clover or hay                             | — | 36 | Trusses | —    | 18  | 0 0 old.    |
| Ditto                                               | — | —  | —       | 36   | —   | 19 1 4 new. |
| Ditto of straw                                      | — | —  | 36      | —    | 11  | 2 8         |
| A quarter of corn is                                | — | —  | —       | —    | —   | 8 Bushels.  |
| Of bran, pollard, chaff of peas and beans, or other |   |    |         |      |     |             |
| offal, are sold by the double measure of            |   |    |         |      | —   | 16 Bushels. |

## EXPENCES

OF

## PRESSING HAY,

WHEN INTENDED FOR

## SHIPPING, OR DISTANT CARRIAGE;

AND AN

ACCOUNT OF THE NECESSARY PRESSES, &amp;c.

FOR PERFORMING THE SAME.

**T**HERE is no instrument better adapted to this purpose than the common packing-press, with double screws, as used by the packers in London. This press is so simple and well constructed as not to occasion the smallest strain, in any place where it is erected. The purchase is wholly confined within itself, and it requires no other mode of fixing than that of being steadied, in an upright position.

The

The expence of these presses is very various, but they cost, on an average, from 25 to 50*l*. But as a press that is not fit for a packer's use will fully answer for that of hay, they may generally be purchased pretty reasonable from most of the press-makers, of whom there are many in London, as well as in most other capital cities and towns.

The only utensils necessary (after being provided with the press and bars) are a few pieces of wood, about 4 inches broad, as many in thickness, and as long as a truss of hay generally runs wide; a common hay-knife; a long iron needle, with an eye sufficient to receive the yarn, or cords, which are intended to bind the hay with, when pressed; and a pair of steel-yards, to weigh the same after it is properly packed and trimmed, as the weights will materially vary, although the trusses or bundles may appear the same in point of size.

The usual mode of packing is by putting as many of the pieces of wood on the bottom of the press as will leave openings sufficient to admit the number of cords the same is intended to be bound with, which, in general, is three, but frequently, when the yarns or cords run rather weak, four; which number is preferable, in my opinion, as it confines the hay in a more even and regular manner, and affords an opportunity of cross-bracing the two nearest cords together, (similar to that of a drum,) which much strengthens the yarns and prevents their breaking, as is the case when single. When you have placed the pieces of wood on the bottom of the press, place your cords or lines, having previously made an eye in one end, to draw the same tight  
when

when done. Then place the quantity of hay you intend to pack, which is generally one hundred and a half, or three trusses, if brought from the London markets, from which you should carefully draw the bands as they are usually made of wet stuff, which would damage the bundles, if pressed into them.

Then place your pieces of wood on the top of the hay, leaving the same openings as below, and putting other pieces lengthways, in case the press should be too high, which may be raised as much as necessary. You may then begin to work your screws down, which should be done in as even and regular a manner as you can, to prevent the screws being damaged, which frequently happens when one screw is worked much lower than the other.

When you have pressed your 3 trusses down to the desired size, which is generally to rather more than the thickness of a common truss, proceed to cut the side to an even and regular form and then with your needle draw one part of the cords or yarns through the openings in the upper part of the bundle of hay, and run the other part of the cord through the eye of the rope, drawing the same as tight as you well can; this purpose may be much assisted by the use of a small piece of stick with a sharp point, round one end of which the yarns may be lightly twisted, and, by striking the other end into the hay, the cords can be drawn considerably tighter than if done only by hand. Observe to leave the cords about 18 inches longer than is required to go round the bundle of hay, and these ends should fall  
about

about the middle of the bundle, with which the two parts may be braced close together, similar to that of a drum, which makes the strain much more regular and certain than when left single. The bundle may then be discharged from the press, and the ends may be cut as the sides were when in the press.

The bundle should then be weighed with a pair of steel-yards, and the weight marked on a tally. The average weight is about 160 lbs. which allows, for the loss of bands and waste, 8lb per bundle. But when the hay runs even and regular, the trouble of weighing may be avoided, by adding what you trim off one bundle to the next package, so as to make every twelve bundles average, on the whole, the total weight of 1920 lbs, which will be equal to that of eighteen hundred when weighed with bands. If the hay be packed with four bands, and braced as before directed, the same may be cut in two with the greatest ease with a common hay-knife, which makes it much more convenient for stowage than in single or whole trusses. Observe, when the hay is so cut, particular attention should be paid, when the same is to be exposed to the weather, that it be not placed with any of the cut sides upwards, as any wet that may fall on it, when so placed, will soon penetrate and damage it, which will not be the case when placed with the outsides uppermost, as they will repel much wet before it can penetrate in the smallest degree.

The usual charge for pressing a load of hay is twelve shillings, which is calculated in the following statement:

For

|                                              | s. | d.    |
|----------------------------------------------|----|-------|
| For labour for 12 bundles, 3 trusses in each | —  | 3 0   |
| Extra, for cutting and trimming —            | —  | 1 0   |
| Cost of yarn, &c. at an average price —      | —  | 4 0   |
| For use of prefs and utensils —              | —  | 4 0   |
|                                              |    | <hr/> |
|                                              |    | 12 0  |
| If cut in two after pressing, extra —        | —  | 2 0   |
|                                              |    | <hr/> |
| Total charge                                 | 14 | 0     |

It is presumed much advantage will arise, to the community at large, was the mode of pressing hay generally adopted, especially for the supply of the London markets, or for any required distance, as it may be done in a comparative degree without incurring the smallest charge or expence whatever, and, if generally adopted, it would prove a great saving of cattle-herbage and much labour done by horses: to prove this I respectfully request the reader's attention to the following statement of the supposed cost. Allowing the bundles to be made up of even hundred weights (instead of one hundred and a half, when intended for shipping) would much reduce the cost of packing, as bundles of that weight might be made up with a common prefs, similar to that used for pressing apples for cyder, to which purpose it might also be applied, as it may easily be so contrived as to answer both intentions.

I should therefore propose that, for each load of hay cut at one time, thirty-six small lines should be provided with a small iron thimble worked in each, to prevent them from chafing, by frequent use; by the help of these lines a load of hay

may be cut into eighteen bundles, instead of 36, which will consequently occupy little more than half the room, and be much less liable to damage from wet, as one team may easily by these means stow one-third more.

The expence of the lines is a matter of little or no consideration, as they would last for years, and would be nearly repaid by the saving in the four loads that they would be used for. The following statement I flatter myself, will be a clear and satisfactory proof.

|     |                                                                                                      | s.    | d. |
|-----|------------------------------------------------------------------------------------------------------|-------|----|
| Dr. | Say, use of 36 white cords with a ring, at 3d. —                                                     | 1     | 0  |
|     | Labour, pressing, and binding, 18 bundles, of one                                                    |       |    |
|     | cwt. each — — — — —                                                                                  | 3     | 0  |
|     | Use of press, &c.                                                                                    | 4     | 0  |
|     |                                                                                                      | <hr/> |    |
| Cr. | By saving of 180 lbs. of hay allowed by act of parliament for 36 pair of bands, at 4s. per hundred — | 6     | 3  |
|     | Say, for labour making bands, 72 being required for each load, and customary charge of binding—      | 1     | 0  |
|     | Charges saved                                                                                        | 7     | 3  |
|     |                                                                                                      | <hr/> |    |

Besides the advantage of sending full one-third more with the same team, and consequently less covering required.

As I am fully persuaded the first cost of the proposed cords, with the rings worked in, would not exceed 3d. each, I think the allowance of 1s. for wear, &c. in each load, is a full and fair allowance, as the whole cost of the cords, at the rate stated, would only amount to 9s. These cords must be brought back by the carman who



who delivers the hay; and he would have nothing more to do than to cast off the ends of the cords which will not require tying, but may be twisted the same as the bands made of hay, and they may be drawn from under in the same manner, on the hay being put into the loft or barn where it is to be used from.

The advantage that must arise from adopting this mode of package with hay intended to be sent by water-carriage of any kind must so forcibly and clearly appear as to render any farther observations unnecessary, it only remains to be noticed that this mode removes the inconvenience arising from the bands breaking, which so frequently happens when the bundles are often removed.

Having, in the foregoing tables, stated the quantity of hay, corn, &c. necessary per week for the several kinds of cattle, any person may easily ascertain the quantity of each kind of food, &c. proper to lay in, agreeable to the mode of feeding they prefer, by multiplying the quantity there laid down by the number of horses intended to be fed, and that gross amount, when so ascertained, by the number of weeks required.

Should the same only be required for a few days, the statement as under will fully answer the purpose.

FOR A HORSE, PER DIEM.

|                                             | lbs.       |
|---------------------------------------------|------------|
| Of good hay — — — —                         | 12         |
| One peck or gallon of oats — — — —          | 5          |
| One bushel of chaff mixed with bran — — — — | 7½         |
|                                             | <u>24½</u> |

F 3

Adding

Adding or diminishing agreeable to the size and nature of the cattle the same may be intended for, the goodness of the fodder used, and allowing weight in proportion to the above quantity.

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General directions and observations on the food and management of horses and mules on-board of ship, and for taking them on-board.

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**A**S it is frequently attended with much difficulty to get the slings on horses, especially after they have been in them, it is therefore recommended, where they appear averse from it by snorting or trembling, to let the slings be at first only laid on their backs, for a few minutes, and brought to and fastened by degrees, observing to keep them moving at intervals, and hood-winked, by which much danger may be avoided.

For the accommodation of horses in stalls, care should be particularly taken to have all sharp edges taken off, and the stalls should be well lined with sheepskins or mats, with straw or hay bands stuffed between, to prevent any bruises or rubs taking place, which frequently happen in stalls from the deficiency of room allowed for motion; but this will be prevented when several stand together, as they will, on motion of the ship,

ship, when in a body, ease one another and prevent the inconvenience arising from being in stalls, which I conceive are only necessary in order to separate vicious cattle, or horses from mares.

The custom of slinging horses and cattle is found, in practice, of little use except on particular occasions; as both horses and mules will take sufficient care of themselves, and be much safer and better on their feet than in slings.

Be particularly careful, before they go on-board, to have their feet well examined, and, if the shoes are continued, let them be but slightly nailed on, but it is usual to suffer only those on the fore-feet to remain, or else to have them slightly tipped.

If the passage be likely to be long, have their feet well stopped with cow-dung, in order to keep them cool. Be very careful not to let the horses or cattle be in the smallest degree heated, previous to going on-board; and, if a small quantity of blood were taken from them, before they go on-board, it may prevent many disorders.

On their first going on-board, do not over-feed them or give them too great a quantity of water, but let them have their food in small quantity, and at least four times in a day, observing to vary the diet as much as possible, or as the nature of the food provided will admit.

Let the troughs or mangers be well washed, and rubbed over with some clean thin tar, which will in a great degree prevent any infection spreading, in case any one should be disordered; and it will also be a pre-

ventative against the danger arising from colds, or other disorders in the head, which frequently turn to the glanders, &c. but which will be prevented from spreading by the use of tar or tar-water. If tar be used, take care that it be of the thinnest kind, and if slightly warmed the better.

Horses or mules, when shipped, should be provided with a flat webb-head halter, with double reins, to prevent their having too great a scope of room one way or the other.

In feeding, be particularly careful not to give them too much of any kind of food at one time; as, in consequence of the length of time they are obliged to stand, during the passage, the more lively and active they are kept the better; and this is much assisted by frequent feeding, and that rather sparingly than otherwise.

In order to enable persons to lay in as near as possible sufficient food for the passage agreeable to the length of the same, I have made two calculations, per day and per week, the one for hay and oats only, the other for using in part the compressed fodder.

For horses of large size.

|                             |          |                       |                        |
|-----------------------------|----------|-----------------------|------------------------|
| Hay, per Day                | — 16lbs  | per week              | 1 cwt. or 2 trusses.   |
| Oats, 2 gallons             | — 10 — — | 14 gallons            | 1 bu. 6 pecks.         |
| Chaff, 1 peck               | — 10 — — | 7 pecks               | 1 bu. 3 pecks.         |
| Bran, $\frac{1}{2}$ -a-peck | — 2 — —  | 5 $\frac{1}{2}$ pecks | 3 $\frac{1}{2}$ pecks. |

Multiply by  $\frac{30 \text{ lbs, per day.}}{7 \text{ days.}}$

$\frac{210 \text{ lbs,}}{\text{or}} \frac{\text{cwt. qr. lb.}}{1 \quad 3 \quad 14} \text{ per week.}$

Therefore, the quantity for the time wanted to be provided for may be easily ascertained on referring to the above table.

Quantity

Quantity of food necessary for horses of  
large size.

|                                  | Weight per day. | Weight per week. |
|----------------------------------|-----------------|------------------|
| One bushel of compressed fodder, | lbs             | lbs              |
| prepared as per table, No. 13—   | 20 —            | 140              |
| One gallon of oats added —       | 5 —             | 35               |
| Hay, per day — — —               | 6 —             | 42               |
| Total weight, per day 31         | —               | — cwt. qu. lb    |
|                                  |                 | 217 or 1 3 21    |
|                                  |                 | per week.        |

Which food should be given, in nearly equal proportions, at four times, viz. in the morning, at noon, afternoon, and night; and the latter allowance should be the largest, on account of the length of time from night until morning.

Water for each, about 5 or 6 gallons per day.

This may be greatly saved by damping occasionally a small parcel of hay or of the compressed fodder by slightly sprinkling the same, and giving it them before they have their full allowance of water in the morning, being a time when the stomach is rather more than ordinarily empty, and they are in general more than usually in want of water.

If a few trusses of clover or cinque foïn be laid in extra, and given by hand occasionally, it will keep the cattle more active, when any person goes among them, in expectation of receiving their usual fare, and it will, at the same time, in a small degree, vary the diet.

Additions to and deductions from the above allowance may be made discretionally, agreeable to the nature and size of the cattle intended to be fed.

TABLE

## TABLE

For calculating the quantity of food, and cost of the same, for any given number of horses or other cattle, according to the number of days or weeks intended to be provided for when on ship-board.

Number of horses.

|         | For ONE.                                     | TWO.                              | FIVE.                                    | TEN.                              | TWENTY.                             | Per  |
|---------|----------------------------------------------|-----------------------------------|------------------------------------------|-----------------------------------|-------------------------------------|------|
| Fodder. | $\frac{1}{2}$ bushel.                        | 1 bushel.                         | $2\frac{1}{2}$ bushels.                  | 5 bushels.                        | 10 bushels.                         | Day. |
|         | $3\frac{1}{2}$ bushels.                      | 7 bushels.                        | $17\frac{1}{2}$ bushels.                 | 35 bushels.                       | 70 bushels.                         | Week |
| Hay.    | 6 lbs.                                       | 12 lbs.                           | 30 lbs.<br>or<br>1 quar. 2 lbs.          | 60 lbs.<br>or<br>2 quar. 4 lbs.   | 120 lbs.<br>or<br>1 cwt. 8 lbs.     | Day. |
|         | 42 lbs.<br>or<br>1 cwt. 14 lbs.              | 84 lbs.<br>or<br>3 quarters.      | 210 lbs.<br>or<br>1 ct 3 qu 14 lb        | 420 lbs.<br>or<br>3 cwt. 3 qu.    | 840 lbs.<br>or<br>7 cwt. 2 quar.    | Week |
| Oats.   | 1 gallon<br>or<br>$\frac{1}{2}$ peck.        | 2 gallons<br>or<br>1 peck.        | 5 gallons<br>or<br>$2\frac{1}{2}$ pecks. | 10 gallons<br>or<br>1 bu. 1 peck. | 20 gallons<br>or<br>2 bu. 2 pecks.  | Day. |
|         | 7 gallons<br>or<br>$\frac{1}{2}$ bu. 3 pecks | 14 gallons<br>or<br>2 bu. 2 pecks | 35 gallons<br>or<br>4 bu. 3 gall.        | 70 gallons<br>or<br>8 bu. 3 pecks | 140 gallons<br>or<br>17 bu. 2 pecks | Week |

It may be necessary to lay in a quantity of bran or horse pollard, for making warm or cold mashes, but it is not necessary to specify any particular quantity, as it is only used discretionally, but it may be more freely used for cows in milk, by omitting the oats, and adding bran in lieu thereof.

Therefore



Therefore to ascertain the quantity of hay, fodder, and oats, necessary to be laid in, multiply the quantity (agreeable to the before mentioned table) by the number of cattle intended to be provided for, and allow for the same at the rate as under, which will ascertain the expence.

## Per day.

|          | lbs. |   |    |                                       |   | s.   | d.                |
|----------|------|---|----|---------------------------------------|---|------|-------------------|
| Hay      | —    | — | 6  | —                                     | — | —    | 0 4 $\frac{1}{2}$ |
| Fodder   | —    | — | 10 | or $\frac{1}{2}$ -a-bushel            | — | —    | 0 7 $\frac{1}{2}$ |
| Oats     | —    | — | 5  | or 1 gallon, or $\frac{1}{2}$ -a-peck | — | —    | 0 4               |
| Total 21 |      |   |    |                                       |   | Cost | 1 4               |

## Per week.

|                                   | lbs. |   |    |                           |   | s.   | d.                |
|-----------------------------------|------|---|----|---------------------------|---|------|-------------------|
| Hay                               | —    | — | 42 | —                         | — | —    | 2 7 $\frac{1}{2}$ |
| Fodder                            | —    | — | 70 | or $3\frac{1}{2}$ bushels | — | —    | 4 4 $\frac{1}{2}$ |
| Oats                              | —    | — | 35 | or $3\frac{1}{2}$ pecks   | — | —    | 2 4               |
| Total 147lbs. or 1cwt. 1qu. 7lbs. |      |   |    |                           |   | Cost | 9 4               |

As these costs are calculated at a supposed average price, agreeably to the table before stated, deductions or additions may be made according to the price of the several articles at the time being; as, for instance, in the price of oats, which in the tables is stated at 20s. per quarter, and are now under 15s. therefore one-fourth part of the cost for that article may be deducted, and the same method must be followed for any other kind of grain.

CONCLU-



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## CONCLUSION.

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**I**N general, it may be remarked, on the foregoing particulars, that there appear to be four circumstances with a view to which this species of food for cattle, consisting of various articles mixed together, and otherwise prepared, may be safely recommended to the public, under the title of IMPREGNATED COMPRESSED CATTLE FODDER.

1. STOWAGE, for the use of ships and camps. In this respect, it is conceived that no doubts can be possibly entertained. Compressing alone renders the materials for shipping far more portable and infinitely more convenient, and less liable to waste, than they would be in any other form.

This seems to be so self-evident and has been so fully set forth in the preceding papers, that it is unnecessary to add to the conviction which must attend the proposition.

If

If fodder should be required to be moved with any degree of haste from one camp, station, or magazine, to another, the same circumstances of convenience and ease of dispatch will equally attach.\*

2. **CUTTING.** The benefits of cutting hay and straw into chaff have been repeatedly proved by so many persons and on so many occasions that no merit is claimed by me on that account; but, if the result of such numerous experiments is satisfactory, it then becomes a question how such a practice is most applicable to the various articles of food with which it is usually given: and in this respect I venture to conclude, from many experiments, that in no other method will chaff so intimately mix with other materials as by compression, nor have an equal power of imbibing their virtues.

3. **MIXTURE.** Mixture alone, in what ever way effected, has been found, by an infinite number of farmers, to be extremely valuable. Chaff and corn, flax and barley meals; oats, peas, and beans; bran and oil, &c. &c. have, in common practice, been often tried,

\* If this idea should be thought a just one, may I presume to add, as a query, whether it might not be proper to send a copy of this memoir to the commanding officer of every corps of cavalry, to try such experiments as might be advisable, and also to examine how far horse-food in this form may be more easily transported than in any other, and on the whole less expensive.

tried, and some are in common use: but it has not been common to multiply the ingredients and adapt the mixture to the sort of stock, and to the œconomical views of the owner. This I have carried farther than I believe has ever been attempted before, and I have every reason to believe, from the success of the trials made, that a very great saving in feeding animals will be found to result from extending the practice.

4. COOKING. The almost universal practice of the Flemings and Germans, in feeding their cows, with certain experiments that have been made in England, seem to be a very fair foundation for the idea that this branch of œconomy has, in this country, been too much neglected.—I do not presume to decide upon such a question, but I may be permitted to remark, that, if it should be found just, there is no method of preparing the materials for such cooking equal to the mixture and compression which I venture to recommend: they are in the most convenient form for that purpose; and various parts of the mixtures duly boiled would form that species of soup which COUNT RUMFORD describes as so beneficial to the cows of Bavaria. It is much to be wished that experiments may be made in order to ascertain the effect of the same practice in England.

Any observations that may be made, by gentlemen, farmers, &c. on the process of mixing the same, together with the various modes of using it, when either boiled, damp, or kiln-dried, if they will have the goodness

ness to communicate the same, they may rest assured, their observations will meet with every possible attention, and be received with many thanks; in hopes, by that means, to bring into general use that mode of feeding of cattle best adapted to the general purpose, and by the same means reduce the price of provisions to a fair and equitable standard, so as the necessaries of life may be brought within the reach of the day-labourer and industrious mechanic.

# ABSTRACT



AN  
ABSTRACT  
OF THE  
ACT OF PARLIAMENT  
NOW IN FORCE  
FOR PREVENTING FRAUDS  
IN THE  
PURCHASE AND SALE  
OF  
HAY AND STRAW.

36 George III. cap. 88. May 14; 1796.

1. *Former acts repealed.*

SO much of 2d Will. and Mary, sess. 2, cap. 8, and 31 Geo. II. cap. 40, as relate to hay and straw, are repealed.

2. *No hay or straw to be sold within certain limits except in trusses.*—No hay or straw shall be sold in any market or other place within the cities of London or Westminster, or the weekly bills of mortality, or within thirty miles thereof, other than what is made up in bundles or trusses: any person selling the same otherwise than so made up shall for every offence forfeit twenty shillings.

3. *Weight of trusses.*—Every truss of hay sold, within the limits aforesaid, between the last day of August in any year and the first day of June in the succeeding year, shall contain and be of the full weight of fifty-six pounds, at least. And every bundle sold, as aforesaid, between the first day of June and the last day of August, in any year, being new hay of the summer's growth of that year, shall be of the full weight of sixty pounds; and being old hay, of any former year's growth, it shall weigh fifty-six pounds. And every truss or bundle of straw, sold within the limits aforesaid, shall contain and be of the weight of thirty-six pounds. Every load of hay or straw shall contain thirty-six bundles.

G

And

And if any hay shall be sold whereof any trufs shall be of less weight than aforefaid, every person so selling shall forfeit, for every such trufs not being full weight, any sum not exceeding five shillings nor less than two shillings and sixpence; and for every such trufs of straw one shilling.

Provided always that no person shall be convicted in such penalty, for selling any bundle or trufs of hay or straw deficient in weight, as aforefaid, where a load or less quantity is sold at the same time, to the same person, if the number of bundles or trusses so sold shall upon the whole amount in weight to the average required as aforefaid.

4. *Penalty for selling new for old hay.*—Every person who shall, within said limits, between the first of June and the last day of December, in any year, sell any hay, the growth of that year, as or for the growth of any former year, shall forfeit, for every bundle so sold, two shillings and sixpence.

5. *Hay or straw to be of one quality.*—Every load or trufs of hay or straw, sold in the limits aforefaid, shall be made up with such hay or straw only as appears to be on the outside of every such load or trufs, and such hay or straw only, and not any inferior hay or straw, shall be deemed and taken to be the hay or straw which is to make up the weight of every bundle or trufs. And every person who shall, within the limits aforefaid, sell any bundle or trufs of hay or straw which shall, on the inside thereof, be of inferior goodness from what the outside shall appear to be, shall forfeit a sum, not exceeding five shillings nor less than two shillings and sixpence, for every such trufs of hay, and for every trufs of straw one shilling.

6. *Penalty for selling hay with bands exceeding 5 lbs. weight.*—Bands with which any trufs of hay shall be bound shall not exceed in weight five pounds. Persons selling any trufs with bands of a greater weight shall for every offence forfeit one shilling; and the further sum of one shilling for every pound weight such pair of bands shall weigh above the weight of five pounds.

7. *Penalty on persons binding hay or straw in light trusses.*—Every person who shall not bind up hay or straw into trusses of the weight before stated shall forfeit sixpence for every such deficient trufs of hay or straw.

8. *Penalty*

8. *Penalty on salesmen buying and selling on their own account.*—No common salesman, factor, or agent, within the limits aforesaid, shall buy or sell on his own account, or any person for him, any hay or straw whatever, or any grass of any kind or description growing or making into hay, under the forfeit of five shillings for every fifty-six pounds weight of hay, so bought or sold, and of two shillings for every thirty-six pounds weight of straw, so bought or sold; and for every acre of grass growing or making into hay, so bought or sold, a sum not exceeding five pounds nor less than fifty shillings.

9. *Salesmen to send proper accounts to the owners.*—Every salesman, &c. within the limits aforesaid, shall, within seven days next after the sale of every load or other quantity of hay or straw, send, to the person on whose account the same shall have been sold, a true account, under his hand, of the place where, time when, and the price for which, the same was sold, and also the name and place of abode of the purchaser, on pain of forfeiting, for every neglect or omission, a sum not exceeding twenty shillings nor less than ten shillings.

10. *A register to be kept in markets.*—In every market for the sale of hay or straw, within the cities or limits aforesaid, shall be kept a public register for entering an account of all hay and straw which shall be sold in any such market. In the city of London, such register shall be kept by the clerk or toll-gatherer appointed by the lord-mayor, commonsalty, and citizens. At the markets in the city of Westminster, and limits aforesaid, such register shall be kept by the clerk or toll-gatherer in the several jurisdictions. In any market, within the limits aforesaid, before six of the clock in the evening on the day of the sale of any hay or straw exceeding four trusses in one quantity, and within seven days after such sale in the said cities or limits, out of any market, the seller thereof shall make a true entry in the register of the market in which such hay or straw shall be sold, or where the same shall be sold out of any market, in the register of the market nearest the place of sale, distinguishing the true names and places of abode of the persons so selling and for whom sold, and by whom and on whose account the same shall have been bought, and the place where sold, and the true price paid or agreed to be paid for the same. The entry is to be subscribed by each seller of hay or straw; and for each entry one penny shall be paid to the register-keeper.

Every

Every such register shall be kept at some convenient place in every such market, and shall be daily open, (Sunday excepted,) from nine in the morning until six in the evening, for the public inspection. Every person applying to inspect the same to pay one penny.

*Penalty for not making due entry, or for refusing inspection of register.*—And in case any seller of hay or straw shall omit to make the proper entry required by this act, or the register-keeper for the purposes aforesaid shall knowingly suffer any untrue entry to be made or signed therein, or shall refuse any person the inspection of the same, such person tendering the inspection-fee, every such seller of hay or straw or register-keeper so offending shall, on conviction, forfeit a sum of money not exceeding five pounds nor less than ten shillings.

11. *Not to extend to hay or straw delivered on contract.*—Provided also that nothing in this act contained shall oblige any person to register any hay or straw which he shall deliver, in the limits aforesaid, on special contract or agreement, but such hay and straw only as shall be sent to any market or place within the said cities and limits to be there sold, and which shall be accordingly sold.

12. *Penalty on clerk or toll-gatherer buying or selling hay or straw.*—No clerk or toll-gatherer, or his deputy, within the limits aforesaid, shall buy or sell or be concerned in buying or selling hay or straw under the penalty of two shillings and six-pence for every truss of hay and one shilling for every truss of straw.

13. *Scales and weights to be kept.*—There shall be provided by the clerk or toll-gatherer, proper scales and weights, or engines, for weighing hay and straw, to be kept at the clerk's-office, as also at the watch-house of every parish, by the churchwardens or overseers.

*Hay-weighers.*—The clerk or toll-gatherer of the hay-market, or his deputy, and the constable or head-borough of the parish or place, are the appointed weighers.

*Buyers may cause it to be weighed.*—The buyer or his representative may have the hay or straw weighed, at his own premises or elsewhere as may be agreed on, in the presence of the seller, should he be doubtful of the weight.—If the buyer be dissatisfied with such weighing, the same is to be re-weighed by the clerk or toll-gatherer, or other person appointed, which shall be conclusive to all parties. In case the hay and straw weighers, within such limits, should not come with

all convenient speed to weigh the same, some other to be appointed, and to be paid, by the person requiring such weighing, at the rate of three shillings per load, and in proportion for a less quantity, before he shall be obliged to weigh such hay or straw.—In default of weight, the seller is to be subject to the penalty aforesaid.

*Penalty for not providing scales and weights, &c.*—If any persons, before appointed for weighing, should omit to keep proper scales and weights, or engines, as aforesaid or shall neglect or refuse to weigh any hay or straw, when required at any seasonable time in the day, the sum of three shillings being first tendered for every load, every person so refusing shall forfeit a sum not exceeding five pounds nor less than ten shillings.

14. *No penalty unless weighed at or before delivery.*—No penalty to be incurred, for selling hay or straw not weight, or of bad quality, unless weighed ~~by~~ complained of at or before the delivery.

15. *Hours at which markets shall end. Notice to be given by ringing a bell.*—The markets for selling hay and straw shall end at three o'clock in the afternoon of every market-day, between Lady-day and Michaelmas, and at two o'clock in the afternoon between Michaelmas and Lady-day. Notice to be given by the clerk or toll-gatherer, or his deputy, by ringing a large hand-bell round each market, one hour before the expiration of the times above-mentioned, and again at the expiration thereof, on pain of forfeiting for every omission a sum not more than ten shillings nor less than five shillings.

*Penalty for selling after market hours.*—Every person selling hay or straw after the hours aforesaid shall, for every truss of hay sold, forfeit sixpence, and for every truss of straw threepence.

16. *Letting hay-carts remain in markets.*—If any person having the care of any waggon, wain, or cart, used for bringing hay or straw, suffer the same to remain in any market for sale of hay or straw after five o'clock in the afternoon, from Lady-day to Michaelmas and, from Michaelmas to Lady-day, after three o'clock in the afternoon, he shall forfeit a sum not exceeding twenty shillings nor less than five shillings.

17. *Horses not to remain in hay-markets fifteen minutes.*—No horse, drawing any hay or straw waggon, is to feed or remain in the market for the space of fifteen minutes, during market hours, under a penalty, for every offence, not exceeding twenty shillings nor less than five shillings.

18. *Penalty*



18. *Penalty for buying and selling unlawfully.*—No person shall buy and sell again any hay or straw that shall or may be conveying, by land or water carriage, for the purpose of selling within said limits, under the forfeit of five shillings for every truss of hay or straw so bought and sold. No straw or hay may be bought, in any market or place, for selling again in the same market or place, under the forfeit of five shillings for every truss of hay or straw. But no persons selling at their own premises by retail a less quantity than five trusses shall be liable to the said penalty.

19. *Charging more than actually paid.*—Any person, employed by another to purchase hay or straw for him, who shall charge more than the price he gave for the same, shall, for every truss of hay or straw so purchased, forfeit five shillings.

20. *Delivering other than the commodity sold.*—Any person who shall deliver any hay or straw in lieu of that purchased shall, for every truss of hay, forfeit ten shillings, and for every truss of straw five shillings.

21. *Fraudulently encreasing weight.*—If any person shall knowingly mix, or cause to be mixed, or put any water, sand, earth, or other matter, in any truss of hay or straw, with intent to encrease the weight of such truss, either before or after the sale thereof, such person shall forfeit, for every truss of hay, ten shillings, and for every truss of straw five shillings.

22. *Delivering less than the number of trusses sold.*—If any person selling hay and straw, or the driver of the waggon, cart, or wain, shall knowingly deliver a less number of trusses of hay or straw than those sold to the buyer, every person or driver so offending shall, for every bundle or truss so delivered short, forfeit five pounds; and in default of immediate payment such driver or other person so offending shall be sent to the house of correction, to be kept to hard labour without bail for a term not exceeding three months nor less than one month, unless the penalty be sooner paid.

23. *Hay or straw exposed and not sold must be brought to the market place on the ensuing market-day, &c.*—If any person brings or receives any hay or straw for sale, or exposes any to sale in the market, on a market-day and which shall not be sold, the same must be brought into the market for sale by eleven o'clock in the forenoon, on next market day;



day; or if any person shall lodge any hay or straw in any place for sale on a bye day, between the usual market-days, he (if the same be not sold before that time) shall expose the same for sale at the nearest market to where the same is lodged on the following market-day, by the hour aforesaid, the weather permitting. Every person offending shall forfeit a sum not exceeding five pounds nor less than two pounds.

24. *Giving or receiving false receipts.*—Any person, concerned in buying or selling hay or straw, who shall give or receive an untrue receipt or ticket of a greater or less price of such hay or straw than what the same was really purchased for or sold at, shall forfeit a sum not more than ten pounds nor less than five pounds, upon complaint to any justice in the jurisdiction within six calendar months from the time of such offence. Any person offending as above who shall give information of any other person committing the same offence, within the time aforesaid, shall be indemnified from the penalty.

25. *Limitation of prosecutions.*—No person shall be prosecuted except information be given within fourteen days from the time of the offence.

26. *Recovery of forfeitures.*—When offenders are summoned and do not appear justices may levy the penalties and costs by distress, unless, within five days from the time of levying such distress, the offending party shall pay the penalty and charges. But in case such offender has neither goods nor chattels, a warrant may be issued to take him wherever he is to be found, and he may be committed to the house of correction for any term not exceeding three calendar months nor less than fourteen days, unless he immediately pay the penalty and expences incurred. Any person, who shall be brought as a witness and shall refuse to be examined, may be committed to prison for fourteen days.

27. *Salesmen convicted of offences may exhibit complaints.*—Any salesman, convicted in any of the above penalties, may exhibit his complaint against the person on whose account he sold the hay or straw before a justice of the peace, within the limits where the same was sold; and such justice shall summon such person to appear before him within seven days from the time of issuing such summons. If such person be found guilty of the complaint, the salesman is intitled to the penalty so by him paid, together with all costs and charges; and if the same be not immediately paid, it may be levied in the manner before-mentioned.

28. *Warrant*

28. *Warrant of distress to be endorsed by a resident justice.*—When-  
ever the party, against whom such warrant of distress shall be granted,  
shall reside in another county, city, &c. out of the jurisdiction of the  
justice before whom the complaint was made, such warrant shall not  
be put in force until endorsed by the justice of such county, &c. to  
which such warrant shall be directed. Which justice shall endorse the  
same on proof of the hand-writing of the justice by whom the war-  
rant was issued, and the warrant may then be served in manner afore-  
said. Such information or complaint must be made within fourteen  
days after the conviction of such salesman; and should such complaint  
be deemed groundless and frivolous, all reasonable charges shall be  
allowed by the salesman to the farmer or other person in consequence  
thereof.

29. *Appeal may be made to the quarter-sessions.*—If any person con-  
victed shall think himself aggrieved by the determination of any  
justice, he may appeal at the next general or general quarter sessions  
of the county or place where such determination and conviction shall  
have been made: but if the same be held within six days after such  
conviction the appeal may be postponed till the second general or  
general quarter sessions. The person appealing to find two securities,  
each in ten pounds, that he will appear and prosecute such appeal.  
The decision of such general or general quarter session to be final.

30. *Penalties to go to the prosecutor, and limitation of actions.*—Every  
penalty or forfeiture, when recovered, shall go and be paid to the  
person or persons who shall prosecute to conviction any offender against  
this act. No person to be sued after the expiration of six months from  
the time the offence was committed. And every suit shall be brought  
in the county or place where the offence shall have been committed.

*General issue and double costs.*—Every person so sued may plead the  
general issue, not guilty, and give this act and the special matter in  
evidence at any trial to be had thereupon. And if a verdict be found  
for the defendant, or the plaintiff become non-suited, or discontinue  
his action after the defendant shall have appeared, or if judgement  
be given upon a demurrer, against the plaintiff, the defendant shall  
recover double costs, and have the same remedy that defendants have  
in other cases for recovery of costs.

